



CARRIZO PLAIN NATIONAL MONUMENT

APPROVED RESOURCE MANAGEMENT PLAN

AND

RECORD OF DECISION



Bakersfield Field Office

April 2010
United States Department of Interior
Bureau of Land Management

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United States Department of the Interior



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April 5, 2010

Dear Interested Party:

I am pleased to announce that, after several years of collaborative effort, the Carrizo Plain National Monument Resource Management Plan (CPNM Approved RMP) is complete. This document will provide guidance for the management of 206,635 acres of Bureau of Land Management (BLM)-administered lands in CPNM in central California.

The attached Record of Decision (ROD) and Approved RMP have been prepared in accordance with the Federal Land Policy and Management Act and the National Environmental Policy Act. The document has been sent to members of the public who requested a copy and to pertinent local State, Tribal and Federal government entities. The ROD links final land use plan decisions to the proposed decisions and analysis presented in the Proposed RMP/Final Environmental Impact Statement (FEIS). Minor changes and points of clarification are described in the ROD, in response to staff review and issues raised in the public protest process. The protest review did not result in any significant changes to the Proposed Plan.

The ROD serves as the final decision for the **land use planning decisions**, described in the attached Approved RMP. The public had an opportunity to protest these decisions after the publication of the CPNM Proposed RMP/FEIS that was released on November 13, 2009, and subject to a 30-day protest period that ended on December 14, 2009. Three protest letters were received. These protests were denied by the BLM Director.

The ROD also describes a set of **implementation decisions** (listed separately in Attachment 2) that identify initial management treatments in particular habitats and vegetative communities, identify wildland fire objectives and appropriate response levels, limit use on routes located in areas managed for wilderness characteristics, require permits for aerial sports (e.g., hang gliding, skydiving, hobby aircraft), provide for guided tours at Painted Rock, and define the priority, framework, and evaluation/approval process for research projects within the CPNM. An appeal opportunity for these decisions is being provided at this time. The process is described in the ROD and at 43 Code of Federal Regulations, Part 4, Subpart E. The appeal period will close **30 days** from the date the Notice of Availability of the ROD/Approved RMP appears in the Federal Register.

Additional hard copies and CD-ROM versions of the CPNM ROD/Approved RMP may be obtained at the address above. The document is available to all parties through the "Planning" page of the BLM national or California website (<http://www.blm.gov>) or by mail upon request.

BLM would like to thank our managing partners, The Nature Conservancy and California Department of Fish and Game, for their cooperative efforts on this document. They have provided support and expertise to facilitate focusing the issues and developing alternatives to help resolve the many compelling resource concerns. They have also expressed their concurrence with the direction and guidance the CPNM Approved RMP provides over the next 10-15 years. The Monument Advisory Committee has volunteered countless hours to provide invaluable input and to encourage individuals and organizations to be involved

in the process. We also extend thanks to those individuals and organizations which have provided extensive information and many excellent ideas that have been considered during this process.

We are pleased to provide this copy of the CPNM ROD/Approved RMP for your reference. We look forward to your continued participation as the plan is implemented. For further information, please contact Judith Sackett at 661-391-6088, or email Judith_Sackett@ca.blm.gov.

Sincerely,



Timothy Z. Smith
Field Manager
Bakersfield Field Office

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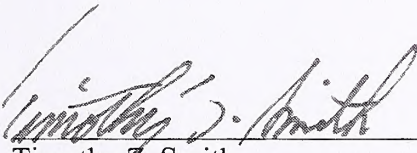
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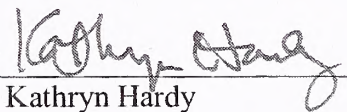
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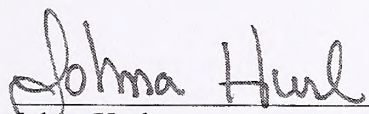
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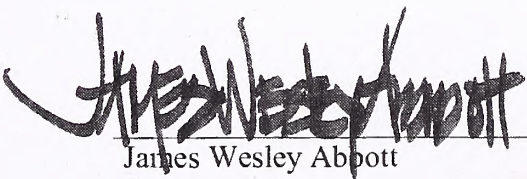
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Carrizo Plain National Monument
Resource Management Plan

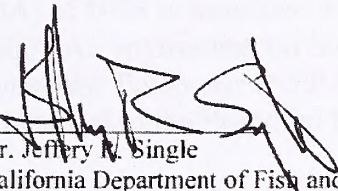
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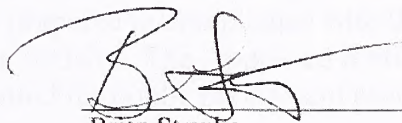
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Dear Reader,

This letter is an acknowledgement of the cooperation and collaboration that has occurred between the managing partners, the California Department of Fish and Game (CDFG) and The Nature Conservancy (TNC) in coordination with the Bureau of Land Management in development of the Carrizo Plain National Monument Resource Management Plan (RMP). The managing partners concur with the direction and guidance the management plan provides over the next 10- 15 years.



Dr. Jeffery N. Single
California Department of Fish and Game
Regional Director



Brian Stranko
The Nature Conservancy
North and Central Coast Regional Director

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Decision

This Record of Decision (ROD) culminates an eight-year public planning process for management of the Carrizo Plain National Monument (CPNM). After considering public comments, best available scientific and technical information, and results of consultation with federal and state agencies, state and local governments, and tribal government, it is the decision of Bureau of Land Management (BLM) to approve the CPNM Resource Management Plan (Approved RMP) for the management of the public lands in the CPNM that are administered by the Bakersfield Field Office. The Approved RMP replaces relevant decisions in the Caliente RMP (BLM 1997).

The Approved RMP was prepared under the authorities of the *Federal Land Policy and Management Act* (FLPMA) of 1976 in accordance with BLM planning regulations (43 Code of Federal Regulations (CFR) Part 1600). An environmental impact statement (EIS) was prepared in compliance with the *National Environmental Policy Act* (NEPA) of 1969 to consider this decision. The Approved RMP adopted here is nearly identical to the Proposed Plan (Alternative 2) presented for public review and protest in November.

Specific management decisions and guidance for public lands within the Monument are presented in the Approved RMP attached to this ROD. All decisions covered by the ROD are either **land use planning** decisions that were protestable during the November 13, 2009 to December 14, 2009 protest period in accordance with the land use planning regulations (43 CFR Part 1610), or **implementation decisions** that may be appealed in accordance with Department of the Interior regulations at 43 CFR Part 4. Attachment 2 to this ROD/Approved RMP lists the implementation decisions that are subject to appeal at this time.

Alternatives Including the Proposed Action

Alternatives Analyzed in the RMP EIS

Four alternatives, including a No Action Alternative, were analyzed in the Proposed RMP / Final EIS. The alternatives were developed using input and comments from public scoping meetings, written comments, and staffs of BLM and other collaborating and consulting partners. The four management alternatives developed for the CPNM RMP are summarized as follows:

No Action Alternative (required by NEPA): Retained current management through guidance and direction from current policies and existing management plans (BLM 1996, 1997).

Alternative 1 represented a more “hands off” approach to resource management, and provided for more limited public uses of the Monument. It focused on natural processes with minimal human interventions to stabilize fluctuations of wildlife and vegetation, except in instances where the populations are in jeopardy. No grazing would have been authorized. This alternative allocated the largest acreage to the “primitive” recreation zone and management for wilderness character. A smaller road network would have been open for public vehicle use. Access to rock art sites would not have been permitted, and only minimal interventions to stabilize or restore historic and prehistoric sites from natural decay would occur.

Alternative 2 (Proposed RMP) represented an approach that incorporates elements of the other alternatives as well as some unique elements to provide for protection of the Monument’s resources while allowing for compatible public uses. It included a moderate acreage for wilderness character management and a mix of active biological restoration and hands-off approaches in different areas of the Monument. Recreation use and rustic improvements were focused along the Soda Lake Road corridor, with the remainder of the area providing for dispersed opportunities. It provided for a transition to grazing for

vegetation management only, access to Painted Rock by permit and guided tour, and stabilization or restoration of priority historic sites.

Alternative 3 represented the most active approach to management and provided for a broader array and higher levels of public use and access while still retaining the overall rustic, undeveloped character of the Monument. It included more intensive resource management and restoration actions for lands that have been impacted by past use. Only the existing Caliente Mountain Wilderness Study Area (WSA) would have been managed for wilderness characteristics. It provided for active restoration of cultural sites, a higher emphasis on environmental education programs and facilities linked to significant cultural and natural resources, and continued management of grazing for forage production while meeting the Monument's biological and cultural resource objectives.

Proposed Plan

The Preferred Alternative of the Draft RMP / Draft EIS was modified to incorporate comments received during the 90-day public comment period. The resulting alternative became the Proposed Plan in the Proposed RMP/Final EIS. Through minor changes and clarifications in response to the protests received on the Proposed RMP / Final EIS, the Proposed Plan is now the Approved RMP, which is attached to this ROD. In the most comprehensive manner, the Approved RMP is designed to respond to each of the issues and management concerns recognized during the planning process. BLM determined that the decisions presented under Alternative 2 provide the most effective balance of protection and restoration of the objects of the Proclamation, while allowing for a variety of compatible public uses.

Environmentally Preferable Alternative

Alternative 2, the Approved RMP, is considered by BLM to be the environmentally preferable alternative. The U.S. Council on Environmental Quality (CEQ) has defined the environmentally preferable alternative as the alternative that will promote the national environmental policy as expressed in Section 101 of NEPA. This section lists the following goals for all federal plans, programs, and policies:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
- Preserve important historical, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

In comparison with the other alternatives analyzed, Alternative 2 best meets these NEPA goals for the future management of the CPNM. It provides a high level of protection of natural and cultural resources, while providing for activities that accommodate public education, visitor use, and economic activities in a manner consistent with resource protection and the recognition of valid existing rights. This alternative acknowledges that the more isolated areas of the CPNM will be managed to preserve their remoteness and

maintain wilderness characteristics. At the same time, it provides appropriate access to areas of relatively high use and along major travel corridors to ensure that a range of recreational activities is available. Overall, Alternative 2 best meets the requirements of Section 101 of NEPA and was thus selected as the environmentally preferable alternative.

The No Action Alternative would have retained current management direction, which would have retained the current number of motorized vehicle access routes, retained the current level of visitor access to sensitive cultural sites, continued to manage only the existing Caliente Mountain WSA to maintain wilderness characteristics, and continued livestock grazing for forage production. For these reasons, the No Action Alternative is not preferable from an environmental perspective.

Alternative 1 represented the alternative with the most “hands off” management. It has the fewest miles of access and designated routes, has the most acres of lands managed to maintain wilderness characteristics, and would have eliminated livestock grazing from public lands. Although this is the most “natural” management alternative, it does not provide for proactive cultural or biological resource management. Consequently, Alternative 1 was not selected as the environmentally preferable alternative because lack of vegetation management would have moderate to major detrimental impacts on wildlife species that are objects of the Monument Proclamation.

Alternative 3 represented the alternative with the most active approach to management, the maximum human use/influence, the most recreation opportunities, and only the existing Caliente Mountain WSA being managed maintain wilderness characteristics. This alternative proposed proactive restoration of species and cultural sites with a higher emphasis on environmental education programs and facilities linked to significant cultural and natural resources, and continued management of grazing for forage production. For these reasons, this alternative did not achieve the balance between resource protection and resource use that permitted enhancement of resource conditions and visitor experience.

Management Considerations

The Approved RMP is the optimum course of action for area management to protect, enhance, and restore the biological, geologic, paleontological, scenic, and cultural resource objects of the Proclamation while allowing for a variety of compatible scientific, cultural, educational, and recreational activities. Management decisions in the form of goals, objectives, and associated allowable uses have been adopted for all resources programs in the CPNM. The decisions in the Approved RMP meet the purpose of the CPNM and comply with Presidential Proclamation 7393.

It most effectively accomplishes the overall objectives of protecting and restoring the Monument’s resources and values, while facilitating compatible public uses as described in the Proclamation. It identifies moderate acreage for wilderness character management and a mix of active biological restoration and hands-off approaches in different areas of the Monument. Recreation use and rustic improvements would be focused along the Soda Lake Road corridor, with the remainder of the area providing for dispersed opportunities. It provides for a transition to grazing for vegetation management only. Allows access to Painted Rock by permit and guided tour, and stabilizes or restores priority historic sites. The Approved RMP results in overall negligible to minor adverse impacts to resources and, through the use of standard operating procedures (SOPs), stipulations in contracts, and best management practices (BMPS), these impacts will be further reduced.

It best addresses the diverse community and stakeholder concerns in a fair and equitable manner by responding to increasing demands for recreation on BLM-administered lands, while adhering to

FLPMA's mandate for multiple use management and sustained yield of renewable resources. Where recreational activities that could be inconsistent with protecting Monument values (such as use of non-street licensed motorized vehicle use) could be accommodated on other BLM-administered lands in the Bakersfield Field Office, these activities were excluded from the Monument.

It also responds to travel management and access issues by designating areas as limited or closed, and identifying routes to be closed, available for continued use, or available for authorized use only. No areas are designated as open in compliance with the Monument Proclamation. A travel management plan for the Monument will be completed within two years from the date of this ROD.

It provides the most workable framework for future management of the CPNM through the application of an adaptive management strategy.

Mitigation Measures

The Approved RMP has incorporated the mitigation measures designed to avoid or reduce impacts within the management actions and supporting information in the Proposed RMP / Final EIS appendices. All practicable means to avoid or minimize environmental harm while still meeting the goals, purpose and need requirements for the proposed plan have been adopted. The Approved RMP would result in overall negligible to minor adverse impacts to resources through the use of SOPs, stipulations in contracts, and BMPs; therefore, a mitigation and a monitoring program as defined in 40 CFR 1505.2(c) is not required.

More specific measures related to resource uses (such as oil and gas leasing and development, grazing administration, and others) are described in Attachment 3 (Standard Operating Procedures and Implementation Guidelines for Projects Affecting the Biological Environment) and Attachment 4 (Minerals Standard Operating Procedures / Best Management Practices / Implementation Guidelines and Conditions of Approval). At the implementation level of decision making (such as when processing an Application for Permit to Drill) if the action will have the potential to affect Proclamation objects and other biological resources, the measures included in Attachment 3 will be applied as necessary to minimize project effects. The measures in both Attachments 3 and 4 will be refined to be site-specific by an interdisciplinary team and applied, as appropriate, in the subsequent site-specific NEPA process.

Plan Monitoring

As the Approved RMP is implemented, BLM expects that new information gathered from field inventories and assessment, research, other agency studies, and other sources will update baseline data or support new management techniques and scientific principles. To the extent that such new information or actions address issues covered in the Approved RMP, BLM will integrate the data through a process called plan maintenance. BLM planning regulations (43 CFR 1610.4-9) call for monitoring RMPs on a continual basis and establishing intervals and standards based on the sensitivity of the resource to the decisions involved. CEQ regulations implementing NEPA state that agencies may provide for monitoring to assure that their decisions are carried out and should do so in important cases (40 CFR 1505.2(c)).

Plan implementation also includes the use of an adaptive management strategy. As part of this process, BLM will review management actions and the Approved RMP periodically to determine whether the objectives set for the CPNM in this and other applicable planning documents are being met. Where they are not being met, BLM will consider appropriate adjustments. Where BLM considers taking or approving actions that would alter or not conform to the overall direction of the Approved RMP, BLM

will prepare a plan amendment and environmental analysis in making its determination and in seeking public comment.

Implementation Monitoring

Implementation monitoring, known by some agencies as compliance monitoring, is the most basic type of monitoring and simply determines whether planned activities have been implemented in the manner prescribed by the Approved RMP. As such, implementation monitoring documents BLM's progress toward full implementation of the land use plan decision. There are no specific thresholds or indicators required for this type of monitoring, but progress toward plan implementation will be evaluated and reported at a five-year interval from the date of plan approval. Aspects of effectiveness monitoring would also be addressed in the evaluation.

Effectiveness Monitoring

Effectiveness monitoring determines if the implementation of activities has achieved the desired future conditions (that is, goals and objectives) set forth in the Approved RMP. Effectiveness monitoring asks the following question: "Was the specified activity successful in achieving the objective?" Answering this question requires knowledge of the objectives established in the Approved RMP as well as indicators that can be measured. Indicators are established by technical specialists to address specific questions and avoid collecting unnecessary data. Success is measured against the benchmark of achieving the goals and objectives (that is, desired future conditions) established by the Approved RMP, which may include regulated standards for resources such as endangered species, air, and water. The interval between these efforts will vary by resource and the expected rate of change, but effectiveness monitoring progress will generally be reported to the Monument manager on an annual basis. These reports will include trends and conclusions, when appropriate, and be incorporated into the five-year evaluation reports.

The management actions detailed in the Approved RMP include numerous measures that constitute a comprehensive monitoring program covering all of the Monument's resources. Monitoring will focus on evaluating the effectiveness of the RMP in managing and protecting the resource values of the area.

Monitoring of biological resources will address species needs and will ensure BLM complies with any terms and conditions specified by the USFWS during ongoing consultation under Section 7 of the *Endangered Species Act*. Until the process is completed, BLM will adhere to the terms and conditions from the existing Caliente RMP Biological Opinion dated March 31, 1997 (Number 1-1-97-F-64); Carrizo Plain Natural Area Biological Opinion dated February 1, 1996 (Number 1-1-95-F-149); and the Carrizo Plain Natural Area Grazing Biological Opinion dated July 5, 1994 (Number 1-1-93-F-70) (USFWS 1994, 1996a, and 1997). The monitoring program for biological resources is a dynamic program. Based on periodic reviews of the quality of the data collected and the usefulness of the data, it will be amended as necessary.

BLM will monitor the Approved RMP to determine whether the objectives set forth in this document are being met and whether applying the land use plan direction is effective (see the Approved RMP). If monitoring shows land use plan actions or BMPs are not effective, BLM may modify or adjust management without amending or revising the Approved RMP as long as assumptions and impacts disclosed in the analysis remain valid and broad-scale goals and objectives are not changed (see the Approved RMP). Where BLM considers taking or approving actions that will alter or not conform to overall direction of the Approved RMP, BLM will prepare a plan amendment or revision and environmental analysis of appropriate scope.

Public Involvement

Within the Carrizo Plain, there was a long history of ongoing public involvement and support in the acquisition of lands and management of the area before it was formally designated as a National Monument. The Monument Proclamation recognizes this existing planning history. The initial Notice of Intent for the current planning process was published in the Federal Register on April 24, 2002. A revised Notice of Intent was published in the Federal Register on March 2, 2007, when the planning effort was changed from an EA to an EIS level of analysis. The joint CPNM RMP development and EIS process involves the following steps:

- **Scoping** – The scoping process is intended to identify issues and concerns from the public, other agencies, and organizations to frame the scope of the RMP and environmental analysis. BLM conducted formal scoping for the CPNM RMP from April 12 to June 12, 2007. The results of this process are contained in the scoping report.
- **Draft RMP/EIS development** – The Draft RMP/EIS was the product of an interdisciplinary team effort to develop and analyze an array of potential alternatives for management of the CPNM that addressed the issues identified in scoping, the direction in the Monument Proclamation, and other laws and policies. The EIS also includes an analysis and comparison of impacts associated with implementing each of the various management alternatives. This process included several opportunities (in addition to the scoping period) for public input through the MAC. After each of these meetings, BLM incorporated recommendations from the Monument Advisory Committee (MAC) into the RMP. Similarly, the Native American Advisory Committee was briefed and input was incorporated into the draft.
- **Public comment on the Draft RMP/EIS** – The 90-day public comment period on the Draft RMP/EIS, which began on January 23, 2009, gave the public an opportunity to review the Draft RMP/EIS and provide input on the alternatives and associated environmental analysis. As stated above, BLM received 15,580 comments on the Draft RMP EIS, including 15,485 submissions of three different form letters and 95 additional comment submissions from federal and state agencies, interest groups, and members of the public.
- **Proposed RMP/Final EIS** – The interdisciplinary planning team reviewed public, agency, and organization comments on the Draft RMP EIS and incorporated changes into the Proposed RMP/Final EIS. This document also included responses to public comments, identifying how they were addressed in the analysis and whether they resulted in any changes to the document. The Notice of Availability of the Proposed RMP/Final EIS was published in the *Federal Register* on November 13, 2009, beginning a 30-day public protest period. The Proposed RMP/Final EIS contained responses to all substantive comments received on the Draft RMP EIS. BLM distributed copies of the Proposed RMP/Final EIS on request and made the document available on agency web site.
- **Protest Review and Resolution** – BLM received a total of three protest letters during the 30-day protest period for the Proposed RMP / Final EIS. Protesting parties were Bidart Bros., Sierra Club Santa Lucia Chapter, and a joint letter from Western Watersheds Project, Center for Biological Diversity, and Los Padres ForestWatch.

The BLM Director's decisions on the protests are summarized in the *Director's Protest Resolution Report, Carrizo Plain National Monument Resource Management Plan*, released on April 1, 2010. The Director denied all three protests. The Director concluded that the BLM California State Director

followed the applicable laws, regulations, and policies and considered all relevant resource information and public input in developing the Proposed RMP.

The BLM Director resolved the protests without making significant changes to the Proposed RMP, though minor clarifications and changes to the text were made between the Proposed RMP / Final EIS and the Approved RMP. The Approved RMP clarified (1) the objective to protect the Monument's vernal pool and sag pond habitats and (2) the application of the mitigation measures listed in Appendices O and P of the Proposed RMP / Final EIS (Attachments 3 and 4 to this ROD/Approved RMP), as appropriate, in the subsequent site-specific NEPA processes.

After the ROD is signed, the BLM will develop a comprehensive Travel Management Plan that will include specific implementation decisions such as designation of roads, primitive roads, and trails. Evaluation of each route using the minimization criteria, criteria developed as part of the public scoping process, and other resource issue-responsive criteria will be documented in the administrative record with verification from the decision maker. The following tasks are identified work that will be done to complete the travel management planning process:

- a) A map of roads, primitive roads, and trails for all travel modes and uses, including motorized, non-motorized, and mechanized travel.
- b) Definitions and additional limitations for specific roads, primitive roads, and trails (defined in 43 CFR 8340.0-5(g)).
- c) Guidelines for managing, monitoring, and maintaining the system. This includes provisions for the development of a sign plan, education/public information plan, enforcement plan, monitoring plan, and application of engineering BMPs.
- d) Indicators to guide future plan maintenance, amendments, or revisions related to the travel management network.
- e) Needed easements and rights-of-way (to be issued to BLM or others) to maintain the existing road, primitive road, and trail network providing access to private or public land.
- f) Provisions for route decommissioning and rehabilitation of closed or illegal routes.

This site-specific analysis will tier to the plan-level analysis and expand the environmental analysis when more specific information is known. In addition, as required by NEPA, the public will be offered the opportunity to participate in the NEPA process for travel management planning.

- **ROD/Approved RMP**– Copies of this ROD and Approved RMP are available upon request and on the BLM web site, at the Bakersfield Field Office, and at the BLM California State Office in Sacramento.
- **Appeal Procedures** – Any party adversely affected by the proposed implementation decisions, as identified in Attachment 2 of this ROD and Approved RMP, may appeal within 30 days of publication of the Notice of Availability of this ROD and Approved RMP in the Federal Register. The appeal should state the specific implementation action(s) on which the decision is being appealed. The appeal must be filed with the Bakersfield Field Manager, at the following address:

Bureau of Land Management
Bakersfield Field Office
3801 Pegasus Drive
Bakersfield, CA 93308

You may include a statement of reasons when the notice of appeal is filed, or you may file the statement of reasons within 30 days after filing the appeal. A copy of the appeal, statement of reasons, and all other supporting documents must also be sent to the Solicitor, U.S. Department of the Interior, 2800 Cottage Way, Suite E-1712, Sacramento, CA 95825.

If the statement of reasons is filed separately, it must be sent to the Interior Board of Land Appeals, Office of Hearings and Appeals, 801 N. Quincy Street, Suite 300, Arlington, VA 22203. It is suggested that any appeal be sent certified mail, return receipt requested.

Chapter II. APPROVED RESOURCE MANAGEMENT PLAN

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II.A Introduction

II.A.1 Purpose and Need for the Plan

The purpose of this planning effort is to complete an RMP to provide direction for CPNM management and land use, which protects the objects of the Monument Proclamation, meets other requirements of the Proclamation (as described in Section II.A.7), and is consistent with FLPMA and other applicable laws, rules, and regulations.

The need for the CPNM RMP is identified in the Monument Proclamation, which directs the Secretary of the Interior to "... prepare a management plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this Proclamation." The Secretary in turn instructed the Director of BLM to "... review relevant management plans for the Monument to ensure consistency with the Proclamation." Furthermore, the Secretary acknowledged that the Bakersfield BLM office had already prepared a management plan for the area: "The management plan for the Carrizo Plain has been developed over the last three years and sets in place many important management goals. That plan should be amended to ensure its consistency with the Proclamation." Following the direction contained in the Monument Proclamation and additional guidance from the Secretary, BLM initiated an amendment process for the existing plan in 2003. However, it was later determined that an EIS-level RMP should be completed to direct management of the Monument. Completion of this comprehensive EIS-level RMP is the purpose of this current action.

The Caliente RMP (BLM 1997) was approved in May 1997 and currently provides general guidance on a landscape level for management of the CPNM. This CPNM Approved RMP replaces the management direction for the CPNM from the Caliente RMP. The decisions made in this RMP include establishing objectives and associated management actions to protect the Monument objects and to provide direction for other aspects of Monument management, including determining allowable public uses.

II.A.2 Planning Area and Map

The CPNM is located in California's southern Coast Range, approximately 90 miles west of Bakersfield and 60 miles east of San Luis Obispo. Most of the area is in the eastern portion of San Luis Obispo County but it also includes small portions of western Kern County (see Map 2-1, Vicinity Map). The CPNM adjoins some of the most intensively managed agricultural lands and petroleum deposits in the U.S. and is less than 100 air miles from Los Angeles. However, the area remains relatively isolated and undeveloped, and retains an intact landscape character. Prominent features include the white alkali flats of Soda Lake, vast open grasslands, and a broad plain rimmed by mountains. The plain is home to diverse communities of wildlife and plant species including several listed as threatened or endangered. The area is culturally important to Native Americans. It is traversed by the San Andreas Fault, which has carved valleys and created and moved mountains. The CPNM is surrounded by several small, unincorporated communities, with larger population centers along the U.S. 101 corridor to the west and San Joaquin Valley to the east.

The planning area for the RMP includes all lands managed by BLM within the National Monument boundary. The decision area includes only BLM-administered lands and federal subsurface mineral estate; additional lands and interests purchased by BLM would also be managed under the guidance of this plan upon acquisition. The RMP does not apply to private or state/county lands or interests within the Monument (see Map 2-2, Physical Features and Planning Area Boundary). While the RMP will direct management of BLM-administered lands and federal subsurface mineral estate only, it has been developed in cooperation with the California Department of Fish and Game (CDFG) and The Nature Conservancy (TNC) as managing partners. BLM and the partners have agreed through a Memorandum of

Understanding to manage their respective lands within the Monument boundary in a complementary fashion.

The planning area includes the following acreages of surface ownership:

BLM lands:	206,635 acres
CDFG lands:	8,702 acres
Other state lands:	607 acres
TNC lands:	75 acres
Private lands:	<u>30,798 acres</u>
Total planning area:	246,817 acres

The following acreages of mineral estate ownership are contained within the planning area:

Federal government minerals:	115,418 acres
Other/private mineral ownership:	131,434 acres

The plan includes recommendations for BLM to work with entities that manage areas or programs that are not under BLM's jurisdiction but directly affect Monument management (such as county roads, tourism information programs, and hunting). However, final decisions regarding these actions rest with the appropriate agency or community government.

II.A.3 Scoping/Issues

II.A.3.a Issues Addressed

Planning themes or issues are defined as matters of concern or interest regarding resource management activities, the environment, or land uses that together serve to provide a framework for the RMP. The themes listed below were identified during scoping at the beginning of this planning process. Based on the scoping comments and public outreach process, the themes and priorities described below were identified to be addressed in and to help guide the planning process.

- ***Undeveloped character:*** Maintain the area's undeveloped character.
- ***Resource conservation and management:*** Restore and protect the area's suite of San Joaquin Valley species and ecosystems.
- ***Wilderness values:*** Manage parts of the area that have wilderness characteristics to maintain those qualities.
- ***Access and travel management:*** Manage the road system to provide necessary access while minimizing impacts.
- ***Recreation development and facilities:*** Provide rustic facilities necessary for visitor enjoyment and protection of Monument resources.
- ***Vegetation management and grazing use:*** Limit grazing to use as a tool for protection and restoration of Monument ecosystems.
- ***Cultural and historic resources:*** Protect cultural and historic resources.

- ***Oil and gas development impacts:*** Minimize impacts from potential oil and gas development within the Monument.

II.A.3.b Issues Considered But Not Further Analyzed

Several topics identified during the scoping process or by the planning team that are not addressed in the RMP/EIS are identified below. These issues are either beyond the scope of the planning effort, were not necessary to make a reasoned choice between alternatives and their relationship to the purpose and need for the RMP/EIS, or can be addressed through existing policy or other non-planning means. These items and the rationale for not addressing them are discussed in detail in the Proposed RMP/Final EIS:

- ***Use of lead bullets:*** Public concern was expressed regarding the effects of lead bullet use on condors and other species from lead poisoning after inadvertently eating the lead. This concern has been addressed through state action.
- ***Ban oil and gas development/acquire private mineral rights:*** Many scoping comments requested that BLM bar any oil and gas leasing or drilling out of concern for possible environmental damage. The Monument Proclamation withdraws the Monument from future leasing. However, existing leases are considered to be valid existing rights and must be managed under the terms and conditions of those leases. Also, much of the Monument is underlain by private mineral estate. BLM can place protective stipulations on use of public lands to access these private mineral rights, but does not have the authority to prohibit access.
- ***Issues relating to the community of California Valley:*** Several members recommended that BLM and other agencies should pursue management actions beyond the CPNM boundary to protect natural resource values within the Monument from pollution, wildlife impacts, and other adverse effects. BLM's management authority only encompasses public lands administered by the agency. However, BLM will work with adjoining landowners, agencies, and county and community governments to pursue complementary management and protection strategies. The Proposed RMP/Final EIS includes an assessment of reasonably foreseeable off-site uses and their potential impacts on Monument resources.
- ***Grazing lease renewals:*** BLM has been directed by Congress to complete grazing lease renewals for all public lands by October 2009. However, this ROD was not completed until after that deadline and BLM does not have the discretion to delay the congressionally imposed deadline for grazing lease renewal. If necessary, grazing leases within the CPNM will now be amended so that they conform to the Approved RMP's goals and objectives. Analysis of grazing lease renewals was not necessary to make a reasoned choice between alternatives for this plan since they could be amended or cancelled to reflect RMP direction once the ROD is signed.
- ***Adequacy of budget to implement RMP:*** The RMP is not a budget document, and alternative development is not based on specific funding projections. A strategy will be developed upon RMP completion that outlines priorities and opportunities for implementing plan actions. The level and speed of implementation will be based on numerous factors including the availability of both BLM and partnership funding, and specific policy and regulatory direction that guides budget priorities (for example, threatened and endangered species protection).

- **Planning for lands adjoining the Monument and expansion of Monument boundaries:** Enlarging or reducing the Monument boundary can only be accomplished by a Congressional act or Presidential proclamation and not through the RMP process.
- **Air to ground gunnery range (AGGR):** Approximately 9,600 acres in the northern part of the Monument were used as the Soda Lake AGGR from 1943 to 1947. As with all former ranges, there is a potential for unexploded ordnance or chemical contamination. The U.S. Army Corps of Engineers conducted two on-site surveys of the range. To date, no unexploded ordnance has been found, but chemical analysis showed soil and percolates contamination. Since these contaminants were found on federal lands, they are handled under the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), and the Department of the Army is the responsible party. None of these chemical concentrations are immediately hazardous to the public. This separate, ongoing process to make the area safe for the public is governed by CERCLA and is outside the scope of the RMP.

II.A.4 Planning Criteria/Legislative Constraints

Planning criteria identify the legal, policy, and regulatory constraints that direct or provide parameters for BLM to address planning issues and themes. Planning criteria are based on standards prescribed by applicable laws and regulations; agency guidance; analysis of information pertinent to the planning area; the result of coordination with the public, government agencies, and Native American tribes; and professional judgment. The initial CPNM RMP planning criteria were presented at the scoping meetings for public input, and were also reviewed and revised based on input at subsequent MAC meetings.

- The plan decisions will recognize the CPNM's primary importance as habitat for threatened and endangered species, rare natural communities, species recovery, and regional conservation.
- The plan will recognize the uniqueness of the CPNM as a significant undeveloped portion of the once vast San Joaquin Valley ecosystem as identified in the Proclamation, which is of crucial importance and provides the context for management.
- The plan will identify core geographic areas for endangered species population management and recovery. Within these core areas, endangered species habitat will be a management priority relative to other resources and uses.
- The plan will recognize the importance of restoring and maintaining a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem. Plan decisions will emphasize an increase of native and indigenous species.
- The planning process will involve Native American tribal governments and federally unrecognized Indian groups, councils, and families representative of the cultural region to provide strategies for protecting known traditional uses, cultural sites, and sacred places.
- Public uses will foster an appreciation of and be consistent with the requirements of the Monument Proclamation to protect the objects of geological, archaeological, historical, and biological value within the Monument.
- BLM will continue to work cooperatively with CPNM managing partners (CDFG and TNC), the MAC, the Native American Advisory Committee, state agencies of the State of California, San Luis Obispo and Kern Counties, the USFWS, and other interested groups, agencies, and individuals. Public participation will be encouraged throughout the process.
- The RMP will continue to promote an already strong program of scientific research and resource monitoring on the Monument.
- The RMP will recognize the state's responsibility to manage hunting within the Monument.

- The RMP will recognize valid and existing rights within the Monument. However, these rights will be reasonably regulated to protect the objects of the Monument Proclamation.

II.A.5 Planning Process

II.A.5.a Relationship to BLM Policies, Plans, and Programs

In addition to the primary direction provided by the Monument Proclamation, there is a broad range of federal laws and regulations that guide development of this RMP, including the following:

- *Antiquities Act* of 1906
- *Taylor Grazing Act* of 1934, as amended
- Federal grazing regulations at 43 CFR 4100
- *Wilderness Act* of 1964
- *National Historic Preservation Act* of 1966, as amended
- *National Environmental Policy Act* of 1969
- *Federal Land Policy and Management Act* of 1976 (BLM Organic Act), as amended
- *Endangered Species Act* of 1973, as amended
- *American Indian Religious Freedom Act* of 1978
- *Archaeological Resources Protection Act* of 1979, as amended
- *Native American Graves Protection and Repatriation Act* of 1990 (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001)
- *Omnibus Consolidated Rescissions Act* of 1996 (P.L. 104-134) (Recreational Fee Demonstration Program)
- 43 CFR 1610 (BLM planning guidance)
- Federal Register 68(151) 46684-46867 (Final Rule for designating critical habitat for vernal pool fairy shrimp and longhorn fairy shrimp)
- Rangeland Health Standards and Guidelines. This RMP incorporates the *Standards for Rangeland Health and Guidelines for Livestock Grazing Management* developed by the Central California Resource Advisory Council and approved by the BLM California State Director and the Secretary of the Interior on July 13, 2000. The RMP includes objectives that are more site-specific and focused on specific aspects of the Monument Proclamation and CPNM ecosystem. However, all of these objectives meet or exceed the Rangeland Health Standards.
- U.S. Department of the Interior Secretarial Order 3270, Technical Guide, signed March 9, 2007 by Dirk Kempthorne (provides policy guidance and procedure for implementing adaptive management).
- *Energy Policy Act* of 2005
- Wilderness: Wilderness studies were completed for all BLM lands as a requirement under Section 603 of FLPMA, and recommendations have been formally submitted from the President to Congress. Therefore, these decisions cannot be changed except by Congressional action. For the CPNM, 17,984 acres are being managed as part of the Caliente Mountain WSA until Congress makes the final wilderness determination through legislative action.

Several BLM policy documents were used as guidance for this RMP. They include but are not limited to the BLM Planning Handbook H-1601-1; BLM Handbook H-8550-1, Interim Management Guidelines for Lands under Wilderness Review; BLM Handbook H-8410-1, Visual Resource Inventory; and BLM Manual 8100, Cultural Resources Management.

BLM has established the National Landscape Conservation System (NLCS) to protect some of the nation's most remarkable and rugged landscapes. The system includes national conservation areas, national monuments, wilderness areas, WSAs, wild and scenic rivers, and national scenic and historic trails. The CPNM is included in the NLCS.

II.A.5.b Collaboration

II.A.5.b.i Intergovernmental, Inter-Agency, and Tribal Relationships

In developing this plan, BLM approached the USFWS regarding cooperating agency status. While the USFWS has been involved in the development of the RMP, the agency has chosen not to become a formal cooperating agency. The CDFG, a managing partner of the CPNM, has established cooperating agency status. Kern County and San Luis Obispo County, the two counties within which the CPNM lies, have not established cooperating agency status, but have members representing them on the MAC.

Endangered Species Act Consultation

In accordance with Section 7 of the *Endangered Species Act*, BLM and USFWS collaborated on evaluating potential impacts of listed species (both plants and animals) from activities potentially authorized during implementation of the CPNM RMP. BLM submitted a Biological Assessment to the USFWS on January 14, 2010. The USFWS issued their no jeopardy Biological Opinion (81420-2010-F-0089) on April 2, 2010, which contained two reasonable and prudent measures: (1) BLM shall assess the effects of the implementation of the RMP on listed and proposed species over the life of the RMP, and (2) BLM shall use the most current information regarding listed species requirements and management practices. These reasonable and prudent measures, and the implementing terms and conditions contained in the Biological Opinion, will be implemented as part of the Approved RMP.

State of California Consistency Requirements

- ***National Historic Preservation Act (NHPA) (Public Law 89-665).*** Under Section 106 of this law, consultation between BLM and the California State Historic Preservation Officer (SHPO) was initiated during the RMP scoping process in 2002. The SHPO was provided with copies of the Draft and Proposed RMPs, and submitted a comment letter supporting the RMP provisions related to cultural resources management. The SHPO identified only one concern related to access to the Caliente Mountain World War II (WWII) Lookout Tower. BLM confirmed in responding to this comment that access is available and that management or restoration of the site is not impacted by the current WSA designation. The SHPO sent a letter of concurrence with the "no adverse effect determination" for implementation of the Proposed RMP in February 2010.
- ***Governor's Consistency Review.*** In accordance with FLPMA (Public Law 94-579) and with BLM planning regulations in 43 CFR 1610.3-2, BLM must identify any known inconsistencies with state or local plans, policies, or programs. BLM must also provide the Governor with up to 60 days in which to identify any inconsistencies and submit recommendations. BLM submitted the Draft RMP to the Governor's Office of Planning and Research, State Clearinghouse and Planning Unit (SCH #2009014005). No state agencies commented to the Clearinghouse, and the BLM received a letter of

confirmation that the RMP complied with state review requirements on December 17, 2009. No known inconsistencies have been identified, either by BLM or the Governor, for the RMP decisions.

Consultation with Native Americans

A charter agreement with the Carrizo Native American Advisory Committee was previously established to be inclusive of all Native American groups consisting of Chumash, Salinan, and Yokuts affiliations having regional cultural ties to the land in the Monument. Native American groups have a long history of collaboration with BLM in planning and managing cultural resources within the Monument and have played an integral role in development of this RMP. A letter inviting participation in the planning process was sent on June 19, 2007 to the Santa Ynez Band of Mission Indians, Santa Rosa Rancheria, and Tule River Reservation. Personal telephone invitations were also extended. Consultation has continued throughout the RMP process. No comments from Native American groups (exclusive of individual commenters that may potentially be affiliated) were received on the Draft RMP EIS.

II.A.5.b.ii Other Stakeholder Relationships

Managing Partners

BLM's managing partners for the CPNM are CDFG and TNC. The Secretary of the Interior recognized that the managing partnership was key to the successful acquisition and restoration of much of the land that now encompasses the Monument. After the President signed the Monument Proclamation, the Secretary provided direction that BLM continue working with the managing partners in administering the area and update the Memorandum of Understanding guiding this collaborative relationship.

The partners concur with the direction and guidance the Approved RMP provides for the Monument over the next 10 to 15 years. Final decisions regarding management actions on each of the partner's lands still rest with the respective agency/organization.

Carrizo Plain National Monument Advisory Committee

The Secretary of the Interior directed BLM to establish a formal advisory committee, whose purpose is to advise BLM on management of the Monument. The MAC has been an integral part of the RMP process, serving as a conduit for additional public input and advising BLM during preparation of the document.

The following groups are represented on the MAC:

- The San Luis Obispo County Board of Supervisors
- The Kern County Board of Supervisors
- The Carrizo Native American Advisory Committee
- The Central California Resource Advisory Council
- Individuals or companies authorized to graze livestock within the Monument
- Four members selected from, but not limited to, the following groups or organizations: dispersed recreational community; mechanized recreational community; academia, to represent educators with experience in a variety of sciences; recognized environmental or resource conservation organizations; minerals and energy resources community; cultural resource representative (local or regional); and/or private landowners adjacent to the Monument.

II.A.6 Related Plans

BLM planning regulations require that RMPs be consistent with resource-related plans of other federal agencies, state and local governments, and Native American tribes, so long as those plans are also consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands. Other agencies' plans relevant to the CPNM planning area include the San Luis Obispo, Kern, and Santa Barbara County General Plans. Other agency plans/programs include the following:

- **Biological opinions from the USFWS** – Caliente RMP Biological Opinion dated March 31, 1997 (Number 1-1-97-F-64); Carrizo Plain Natural Area Biological Opinion dated February 1, 1996 (Number 1-1-95-F-149); and the Carrizo Plain Natural Area Grazing Biological Opinion dated July 5, 1994 (Number 1-1-93-F-70) (USFWS 1994, 1996a, and 1997). BLM initiated formal consultation pursuant to Section 7 of the *Endangered Species Act* on January 14, 2010. The USFWS issued their no jeopardy Biological Opinion (81420-2010-F-0089) on April 2, 2010.
- **USFWS recovery plans for endangered species** – Recovery Plan for the California Condor (USFWS 1996b), Recovery Plan for Upland Species for the San Joaquin Valley (USFWS 1998), and the Recovery Plan for the Kern Primrose Sphinx Moth (USFWS 1984).

This RMP is consistent with the applicable, officially approved resource-related plans of other federal agencies, state and local governments, and Native American tribes.

II.A.7 Policy

The CPNM was established by Presidential Executive Order on January 17, 2001 using authority under Section 2 of the *Antiquities Act*. The Monument Proclamation (see Attachment 1) followed years of land acquisition, planning, and a natural resource restoration effort led by the area's managing partners: the BLM, TNC, and CDFG. Prior to its establishment as a National Monument, the area was managed under the Carrizo Plain Natural Area Management Plan of 1996. Under National Monument status, the Monument Proclamation calls for development of a new management plan, as follows: "The Secretary of the Interior shall prepare a management plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation." This Approved RMP represents the culmination of an eight-year process completed to meet that mandate. This is the first comprehensive planning process since the original Carrizo Plain Natural Area Management Plan was completed in 1996.

This Presidential Proclamation provides the primary direction for management of the area and development of this RMP. Under the Proclamation, BLM is directed to protect the objects for which the Monument was designated.

Summary of Proclamation Objects and Management Direction

Biological Objects	
Flora and fauna characteristic of the San Joaquin Valley region	The migratory birds, cranes, curlews, and mountain plovers that use Soda Lake
Habitat for the long-term conservation of the many endemic plant and animal species that inhabit the area	Populations of pronghorn antelope and tule elk
Endangered, threatened, and rare animal species such as San Joaquin kit fox, California condor, blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelope squirrel, longhorn fairy shrimp, and vernal pool fairy shrimp	San Joaquin grassland ecosystem flora, including rare and sensitive plant species such as California jewelflower, Hoover's woolly-star, San Joaquin woolly-threads, pale-yellow layia, forked fiddleneck, Carrizo peppergrass, Lost Hills saltbush, Temblor buckwheat, recurved larkspur, and Munz's tidy-tips

Geological and Paleontological Objects	
Soda Lake, which encompasses the largest remaining natural alkali wetland in southern California	The Caliente Formation, which is host to abundant and diverse terrestrial fossil mammal remains and fossils of mollusks, pectens, turitellas, and oysters
The San Andreas Fault and its spectacular exposures of fault-generated land forms	
Human History Objects	
Bedrock mortar milling features, village middens, and elaborate world-class pictographs that are the primary manifestations of prehistoric occupation	Features from European expeditions and settlement, including artifacts and structures from livestock ranching, farming, and mining activities

In addition to protecting the objects listed above, the Proclamation directs that:

- All federal lands and interests in lands within the boundaries of the Monument are withdrawn from all forms of disposition under the public land laws, including the mining laws, other than by exchange that furthers the protective purposes of the Monument;
- All motorized and mechanized vehicle use off road is prohibited, except for emergency or authorized administrative purposes;
- Lands and interests in lands within the proposed Monument not owned by the United States shall be reserved as a part of the Monument upon acquisition of title thereto by the United States;
- A management plan shall be prepared that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this Proclamation;
- The establishment of this Monument is subject to valid existing rights;
- The Proclamation does not change the jurisdiction of the State of California with respect to fish and wildlife management;
- Subject to valid existing rights, a quantity of water is reserved sufficient to fulfill the purposes for which this Monument is established
- Laws, regulations, and policies followed by BLM in issuing and administering grazing permits or leases shall continue to apply with regard to the lands in the Monument.

FLPMA supports the Proclamation and provides a framework for the BLM's land use planning process. Land use plans for public lands managed by BLM are referred to as RMPs. RMP decisions establish goals and objectives for resource management as desired outcomes, and the measures needed to achieve these goals and objectives as management actions and allowable uses.

II.A.8 Overall Vision

II.A.8.1 Mission Statement

The Mission Statement is a focused summary of the Monument Proclamation and serves as the guiding principle for management of the CPNM and will not change over time. The Vision Statement provides for management strategies that will help accomplish the Mission. Both the Mission and Vision were developed to implement the January 2001 Presidential Proclamation that established the CPNM. The Proclamation cited the following as the purpose of the CPNM: protect the largest undeveloped remnant of San Joaquin Valley grassland ecosystem, providing for the long-term conservation of the endemic plant and animal species; a refuge for endangered, threatened and rare plant and animal species, as well as important populations of pronghorn antelope and tule elk; Soda Lake, the largest remaining alkali wetland in Southern California; geologic processes and the San Andreas fault; significant fossil assemblages; and archaeological and cultural resources.

The mission within the CPNM is to protect and enhance the indigenous species and natural communities, within a dynamic and fully functioning ecosystem; conserve the unique geologic, paleontologic, scenic, and cultural resources; and provide opportunities for compatible scientific, cultural, educational, and recreational activities.

II.A.8.2 Vision Statement

The vision is to cooperatively employ management strategies that conserve the integrity of the CPNM as an ecological system and natural landscape with its full array of natural and cultural features.

The management of the CPNM should protect and enhance the full spectrum of physical and chemical processes necessary to support indigenous species, biological diversity, and ecological function and processes within the natural range of variation.

II.B Management Decisions

II.B.1 Introduction

This section describes the decisions approved in the ROD for the CPNM RMP, otherwise known as the Approved RMP. It includes land use planning decisions and administrative actions that will be implemented over the life of the RMP. The decisions listed here are the same as those in the Proposed RMP, except for changes in syntax to reflect that the actions are now formal decisions, to clarify the objective to protect the CPNM's vernal pool and sag pond habitats, and to clarify the application of the mitigation measures listed in Attachments 3 and 4, as appropriate, in subsequent site-specific NEPA processes. Otherwise both documents are the same and may be used interchangeably.

II.B.2 Use of Adaptive Management Process

Secretary of the Interior Order Number 3270 calls for BLM and other Department of the Interior agencies to incorporate adaptive management principles into management plans and programs. The Secretarial Order also directs that *Adaptive Management: The U. S. Department of the Interior Technical Guide* (USDI 2007) be used as the technical basis for implementing adaptive management programs.

Adaptive management recognizes that ecosystems are very complex and understanding of their processes and responses to management actions is limited. Thus, the greatest hurdle to overcome in implementing effective restoration and other management actions is uncertainty regarding their effectiveness. Adaptive management acknowledges that there are incomplete data when dealing with natural resources, and that through continued research and monitoring of management practices, new information will be collected. This new information is evaluated, and a determination is made whether to adjust the strategy accordingly to improve success in meeting plan objectives.

As the *Technical Guide* points out, adaptive management is only warranted when all of the following criteria can be met:

- There is a need to take action in the face of uncertainty.
- There is an opportunity to apply learning.
- The objectives of management are clear.
- The value of reducing uncertainty is high.

- Uncertainty can be expressed in a set of competing testable models.
- A monitoring program design can be put in place with a reasonable expectation of reducing uncertainty.

The CPNM meets all of these parameters, and an adaptive approach to managing the area is already being implemented by the managing partners. The area is a complex and highly variable ecosystem with natural conditions that have been altered by past land uses. Although considerable research and monitoring has been implemented in the area, there is still a relatively high level of uncertainty about the effects of various management treatments for values such as restoring endangered species habitat or increasing native plant cover. This RMP contains clear objectives for management outcomes or “desired future conditions” of the various resources in the Monument. The RMP also lists a suite of initial actions that will be taken in an effort to restore and manage ecosystems to meet the RMP objectives. Some of these actions are listed within the plan itself, while others are contained in the Conservation Target Table (Attachment 5). Monitoring is an important component of RMP implementation and will be used to gauge the effectiveness of actions at achieving objectives. BLM recognizes the need to develop and implement a monitoring plan as soon as possible. The Bureau will work with the managing partners, stakeholders, and the scientific review committee to adopt an initial monitoring and adaptive management plan within three years. While the first priority will be to develop monitoring objectives, field protocols, and evaluation methods for the endangered species core areas, the managing partners will subsequently develop monitoring strategies for the wide variety of conservation targets in the Monument. Also, the RMP calls for continued support of scientific studies and outside review of resource management programs. These two types of actions will serve as a feedback loop so that managers can evaluate the effectiveness of actions in achieving plan objectives and learn/adjust as needed.

In summary, this RMP is structured so that the managing partners can continue to apply adaptive management principles within the framework of the *Technical Guide*. Adaptive management applications are used most extensively in the Biology program. However, other programs such as Recreation and Cultural Resources Management will make use of adaptive management principles as described in those respective sections. Note that adaptive management does not give managers an open book to implement any action deemed necessary to meet plan objectives. If a proposed approach is outside of the scope of the analysis conducted in the NEPA process for the RMP, additional environmental documentation, including a possible RMP amendment, would be required.

II.B.2.1 Use of CPNM Conservation Target Table for Adaptive Management

Several resource management programs (Biology, Livestock Grazing, and Fire) refer to a Conservation Target Table to describe specific aspects of management program implementation. This table (Attachment 5) has been developed as an integral part of an adaptive management approach to guide implementation of objectives in this RMP for the protection and benefit of the natural communities and featured species (listed species, large native ungulates, and plant or animal species receiving management emphasis). The objectives listed in the table are derived from and fully support the objectives described in this RMP. The objectives in the table are linked to RMP objectives by showing the associated RMP number(s). The table identifies important ecological factors that influence the health, abundance, and distributions of the natural communities and featured species. This is accomplished by identifying: (1) the important habitat or population parameters that influence the target communities or species, (2) the specific habitat or population indicators or variables to be monitored, (3) the measurable attributes for these variables, (4) the values of these variables that will trigger management actions, and (5) the recommended management actions or prescriptions that may influence habitat suitability or population demographics needed to maintain the target’s health, abundance, and distribution goals.

The elements in the table are developed using the best available information obtained from published literature, unpublished reports, monitoring data from within the Monument and other similar habitats, other locations with the range of the featured species, and professional experience/opinion among staff with direct experience in the Monument.

II.B.2.2 Use of the Conservation Target Table in Implementing RMP Objectives

The Conservation Target Table (Attachment 5) will provide detailed implementation-level direction for adaptive management in the Monument. The monitoring of the management actions and their effects to the conservation targets will occur in the following manner:

- The conservation targets (vegetation communities, plant and animal featured species populations, demographics and distributions) will be monitored.
- The variables for the management objectives will be gauged in relation to the desired values of the variable. For example, a certain patch size would be the value for the variable of shrub cover.
- Recommended management prescriptions or actions and constraints to actions (ranging from the hands-off treatments to the applied treatments of prescribed fire, livestock grazing, mechanical or chemical control, and human activities), would be evaluated by monitoring the management objective variables in relation to the implementation of the prescription.
- Changes in the management variables among the actions or constraints would determine the management effects. For example, an increase in the number of tadpoles (variable) in known ponds would measure the effect of an action to protect spadefoot toads.
- As monitoring data are evaluated, the information will be used to determine the success of the management actions or constraints in meeting the specific conservation targets and the related RMP objectives.
- The evaluations and new knowledge about the conservation targets and the management effects would be used to inform future management actions and decisions so that they best meet the associated RMP objectives.

The Conservation Target Table will also be used to describe where or under what conditions in the Monument actions should be employed to best meet RMP management objectives. The basic unit for management is currently at the pasture level, the boundaries of which originated with historic ownership or usage. As needs for species are identified and management actions defined, pasture boundaries would be adjusted to reflect the ecological parameters of the species and enable the level of management needed. As a companion to the Conservation Target Table, a pasture management table or matrix will be developed to inform managers where the Conservation Targets are currently relevant based on presence or absence within a pasture. This pasture table or matrix will evolve with the changing pasture boundaries and the knowledge of the Conservation Targets over time and throughout the Monument.

II.B.2.3 Incorporating Changes into the Conservation Target Table

The Conservation Target Table (Attachment 5) and associated Pasture Management Table are considered to be works in progress and will be updated as needed using adaptive management principles outlined in *Adaptive Management: The U.S. Department of the Interior Technical Guide* (USDI 2007) and authorized under Secretarial Order 3270. The elements of the tables will be subject to ongoing review by the managing partners (BLM, TNC, and CDFG), the scientific community, species experts, the MAC, the USFWS, and the public. Changes would be made to the management guidelines (actions or constraints) or the desired values for the indicator variables as new knowledge is gained about the natural communities,

the species, the ecological relationships, and management effects. This knowledge would be applied to ongoing and future management actions, thus “adapting” the management of the Monument to best meet RMP objectives using the best available information about the natural communities, featured species, and objects to be protected in the Monument.

Information or events that may trigger a change includes new literature, study results, more complete information, monitoring results, new species, unanticipated impacts, newly discovered population or habitat locations, or input from species experts. BLM will review the Conservation Target Table annually to determine if changes are appropriate. Information or events may trigger more frequent reviews. In addition to the managing partners, BLM may solicit input from species or topic experts. Through consensus, BLM in cooperation with the managing partners may change the Conservation Target Table based on the review. The modified Conservation Target Table will be submitted to the BLM authorized officer for approval. The change would be implemented as soon as any required intermediate steps have been completed, such as NEPA analysis, publication of Federal Register notices, or consultation with the SHPO or USFWS. The Conservation Target Table in its most current form will be available to the public.

Changes in the management guidelines (actions or constraints) or the desired values for the indicator variables in the Conservation Target Table will normally not require an amendment to this plan, as they would only involve changing the way to reach the same RMP level decisions (objectives and actions). Changes to the conservation target management objectives would likely require a plan amendment as they would require updating the associated RMP-level objectives and land use allocations. Any changes would undergo appropriate technical review, and further NEPA analysis would be required if they are outside the scope of analysis of the RMP’s NEPA process. The Conservation Target Table is a work in progress and the ability of certain actions or suites of actions to meet plan objectives is uncertain for many resources. For this reason, plan objectives will always take precedence over Conservation Target Table objectives, thresholds, and other targets; that is, if an action in the Conservation Target Table is found to conflict with a plan objective, the Conservation Target Table would be modified accordingly.

II.B.3 RMP Terminology

RMPs are broad-scale land management plans that establish desired outcomes (goals and objectives) for management of public lands and identify the management actions and allowable public uses that will achieve those outcomes. More specific implementation-level decisions are typically made after the RMP is adopted, but in some cases they are identified during the RMP process and incorporated into the plan, especially when the plan covers a relatively compact geographic area such as a National Monument. For example, decisions about designating specific vehicle routes, which are implementation-level decisions, are part of the Approved RMP.

Not all issues can be resolved in the general language of an RMP, instead requiring that more detailed implementation plans and NEPA analysis be developed to determine exactly how to reach desired conditions or to achieve a desired result. Prior to being initiated, all implementation actions will be subject to the appropriate level of NEPA review. Through this process, BLM will ensure the project is consistent with the Monument Proclamation and the management goals and objectives for the CPNM in this RMP. In this Approved RMP, all of the goals, objectives, and management actions are given an alphanumeric identifier, such as “Goal BIO-1” to identify a specific goal under the Biological Resources program, “Objective VRM-2” identifying a specific objective under the Visual Resources Management (VRM) program, or “Action CUL-1” identifying a specific management action under the Cultural Resources Program. These designations will assist BLM in referring to specific goals, objectives, and management actions during the plan’s implementation. The numbering of the items in this Approved RMP is not sequential in all sections, since the numbers assigned to specific items from the Proposed RMP were retained for continuity throughout the planning process.

In addition, each identifier is followed by either a “(P)” or an “(I)”, indicating whether the item is a plan-level or implementation-level item. Implementation decisions are subject to appeal to the Interior Board of Land Appeals. If an implementation-level decision has an asterisk (I*), it has not been analyzed at a level that would allow for direct implementation from the plan and additional environmental analysis would be completed prior to “on-the-ground” implementation. The Approved RMP also identifies support actions (S). These are actions that are included in the plan to provide context for plan decisions, but are not subject to NEPA analysis (for example, monitoring or inspection frequencies).

Each of the plan, implementation, and support decisions are characterized in the plan as goals, objectives, management actions, and allowable uses. These are defined as follows:

Goals describe broad direction and desired conditions for each resource or resource use. Goals are derived from the Monument Proclamation, BLM policy guidance, and public scoping input.

Objectives describe more detailed outcomes or “desired future conditions” for different components of the resource or resource use that meet the overall goals.

Management Actions describe efforts that CPNM managers anticipate taking to achieve the objectives (for example, prescribed burning, road decommissioning, monitoring), based on the best available information and technology at the time of plan development. As new information, technology, or practices become available or established, certain management actions may be added, modified, or discontinued to incorporate the best available science using an adaptive management approach. Any modified or new actions would be consistent with the plan objectives. Also, if new information shows that an action conflicts with an objective, then that action would be discontinued. In other words, the objectives take precedence over the actions in this adaptive approach. The adaptive management process was discussed in more detail in Section II.B.2 above.

Allowable Uses: For the use-oriented programs (grazing, recreation, travel management) the RMP also identifies allowable public uses and limitations on these uses.

Special Designations: RMPs also address special designations such as areas of critical environmental concern (ACECs) (administratively designated through RMP), and wild and scenic river suitability (analyzed in the RMP but requires Congressional action for formal designation).

II.B.4 Biological Resources

II.B.4.1 Introduction

This section highlights management of biological resources including wildlife and associated habitat and vegetation. The CPNM Proclamation recognized the intrinsic values of the biological resources of the Monument area as objects to be protected under the designation. Specifically, the Monument Proclamation provides protection for the CPNM as the largest undeveloped remnant of the San Joaquin Valley ecosystem, providing crucial habitat for the long-term conservation of the many endemic plant and animal species that still inhabit the area. The Monument offers a refuge for endangered, threatened, and rare animal species such as San Joaquin kit fox, California condor, blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelope squirrel, longhorn fairy shrimp, and Kern primrose sphinx moth. Important populations of pronghorn antelope and tule elk have been reintroduced to the Monument. Rare and sensitive plant species, including California jewelflower, Hoover’s woolly-star, San Joaquin woolly-threads, pale-yellow layia, forked fiddleneck, Carrizo peppergrass, Lost Hills crowscale, Temblor buckwheat, recurved larkspur, and Munz’s tidy tips occur on the Monument. The Monument was noted as

providing crucial habitat for the long-term conservation of the dwindling flora and fauna characteristics of the San Joaquin Valley. BLM is directed, pursuant to applicable legal authorities, to implement the protection of the objects identified above.

FLPMA and BLM policy direct the agency to manage habitat with an emphasis on ecosystems to ensure self-sustaining populations and natural abundance and diversity of wildlife, fish, and plant resources on public lands (BLM Manual Section 6500: Wildlife Management). BLM is further directed to maintain an inventory

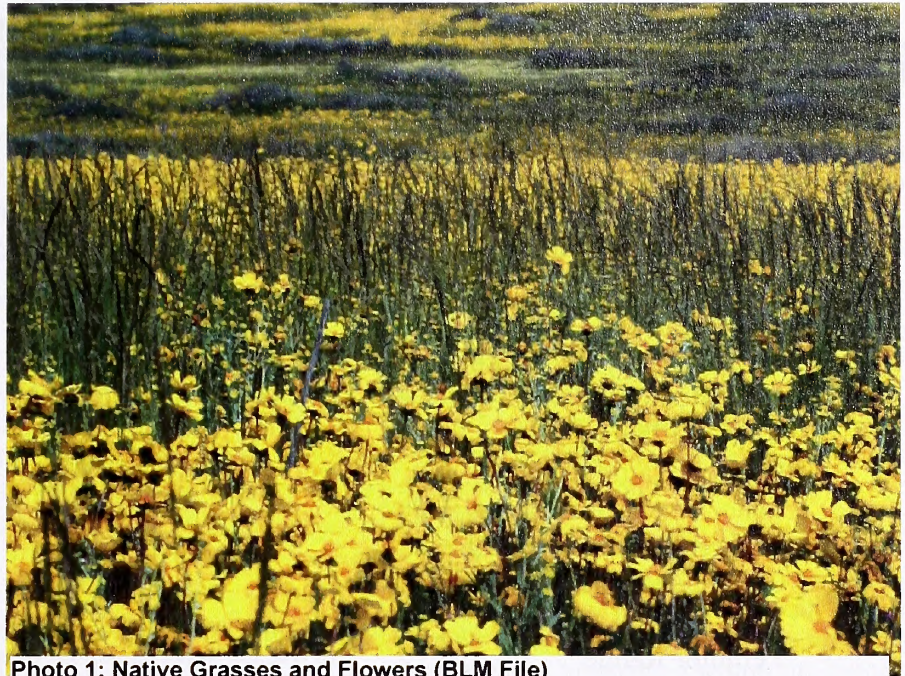


Photo 1: Native Grasses and Flowers (BLM File)

of wildlife, plant communities, threatened, endangered, and candidate species; support and carry out research necessary for proper and efficient management of wildlife and special status species; and monitor ongoing management actions and determine if habitat management objectives are being met.

The federal *Endangered Species Act* requires BLM to use its authorities to further the purposes of the Act by carrying out conservation programs for listed species and the ecosystems on which they depend. BLM must ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any listed species. It is BLM policy that actions authorized by BLM shall further the conservation of federally listed and other special status species and shall not contribute to the need to list any special status species under provisions of the *Endangered Species Act*. In addition, it is BLM policy that the agency shall carry out management for the conservation of state-listed plants and animals. BLM will conserve state-listed plants and animals and use its authorities to further the purposes of the State of California rare and endangered species laws and apply such laws to BLM programs and actions to the extent that they are consistent with FLPMA and other federal laws.

The USFWS has developed the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998). This plan identified the CPNM (previously known as Carrizo Plain Natural Area) as being one of several “Core Area of Natural Lands” targeted for protection. The Monument is listed as important for the conservation and recovery of California jewelflower, Hoover’s woolly-star, Jared’s peppergrass, Temblor buckwheat, San Joaquin woolly-threads, blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelope squirrel, San Joaquin kit fox, short-nosed kangaroo rat, Tulare grasshopper mouse, San Joaquin Le Conte’s thrasher, Lost Hills crowscale, and Munz’s tidy-tips. The San Joaquin Valley Recovery Plan also includes actions to maintain habitat linkages between the CPNM, western Kern County, and the Salinas Valley. The Monument is also important habitat for federally listed Kern primrose sphinx moth, longhorn fairy shrimp, and California condor.

Other federal laws that direct wildlife, plant, and habitat management on BLM lands in the Monument include the *Bald Eagle Protection Act* of 1940, the *Fish and Wildlife Improvement Act* of 1978, the *Migratory Bird Treaty Act* of 1918, and the *Tule Elk Preservation Act* of 1976 (Public Law 94-389).

The State of California, through the California Fish and Game Commission and CDFG, is responsible for managing wildlife populations and establishing hunting seasons and regulations.

II.B.4.1.1 Use of Ecological Subregions

Section III.B.1 of Chapter III describes nine ecological subregions that were identified by the planning team based on similar geography and general ecological characteristics. These subregions provide a context for certain management prescriptions in the plan for managing biological resources. Please refer to Section III.B.1 and Map 3-1 (Carrizo Plain Subregions) for locations of and descriptive information on the subregions listed below:

Caliente Foothills South
Caliente Foothills North
Carrizo Plain North
Carrizo Plain Central
Panorama Hills/Elkhorn Plain
Caliente Mountain North
Caliente Mountain South
Soda Lake
Temblor Range

II.B.4.1.2 Use of Vegetation Management Toolbox

To achieve a desired resource objective, it may be necessary to modify vegetation abundance, distribution, composition, and/or structure. Proposed examples include creating low structure in core areas, promoting forbs in pronghorn forage areas, pretreatment for restoration projects, elimination of thatch to promote wildflower displays, restoration of oak habitat, and weed treatments. The choice of whether to apply a vegetation management tool, or which tool to use, is based on existing conditions, the physical and biological processes at the site, the species targeted, the desired outcome, the type and influence of impacts, and the funding available. Following adaptive management practices such as these, efforts will be made so that the tool employed achieves the desired objective, with a minimum of negative impacts to other resources. Table II.B.4-1 describes the Vegetation Management Toolbox.

In summary, the term “vegetation management” as used in the RMP denotes any manipulation of vegetation to meet a specific plan objective for either wildlife or botanical resource management. In many cases, tradeoffs would be involved and a specific tool that benefits one resource would negatively impact another. Most commonly, treatments targeted towards for wildlife habitat restoration would negatively impact native vegetation within the treatment area. The RMP acknowledges these undesirable consequences/tradeoffs and includes protective and mitigating measures to maximize the beneficial effects to Monument resources while minimizing the negative impacts (for example, identification of threatened and endangered animal core areas for treatments, fencing, and monitoring). However, this would not completely eliminate negative impacts. As stated above, the RMP would be implemented using an adaptive management approach to further refine use of management tools to increase beneficial results while minimizing undesired effects.

II.B.4.2 Goals

- *Goal BIO-1(P):* Manage the landscape to enhance the CPNM as a significant unique and undeveloped portion of the once vast San Joaquin Valley ecosystem (which is of crucial importance and provides the context for management).
- *Goal BIO-2(P):* Restore and maintain a mosaic of natural communities and successional stages to benefit the biodiversity inherent in the ecosystem, including ecological processes that sustain them. Manage resources to emphasize an increase of native and indigenous species.

Table II.B.4-1. Vegetation Management Toolbox

Tool	Methodology / Rationale	Possible Uses
Hand removal	Hand pulling, hoeing, and digging out targeted individuals or groups of plants. Good for small and specific targets, problematic for large-scale targets, and not effective against certain weed species (such as many perennial herbs).	Hand treatment to eliminate small weed populations, to control specific weed species, and to promote rare plants or restoration plantings by reducing competition from introduced plants.
Mechanical	Mowing, weed-whipping, cutting (chainsaw), brush removal, tarping. Good for small to medium-scale targets, possible negative impacts to habitat by equipment (such as soil compaction, creation of disturbed soils, burrow collapse). Tarping good for small populations, but takes time to produce results.	Treatment of fuels for fire control. Removal of thatch build-up to achieve low-structure habitat in core areas and as pretreatment before restoration seeding. Cutting to remove exotic tree species and pruning shrubs and trees in campgrounds or around Monument facilities. Mowing to create temporary trails in grassland habitat and as maintenance around signs and other Monument infrastructure.
Burning	Flaming, controlled burns. Good for small to large-scale targets, creates a mosaic of treatments across a landscape. Possible negative impacts to animals and fire-sensitive plants or if fire escapes project boundaries. Not effective against certain weeds.	Flaming specific weed targets and as a general weed treatment immediately before restoration seeding. Burning to remove thatch build-up to promote wildflower displays and forb production for pronghorn, to achieve low-structure habitat in core areas, and as a pretreatment for restoration seeding. Burning to remove excess tumbleweeds.
Grazing	Variables include type of livestock, timing and duration of treatment, stocking rates, and frequency. Good for medium to large-scale targets, creates a mosaic of treatments across a landscape, is relatively cost-effective, and has a wide range of treatment variables. Potential negative impacts include damage to native plants, the introduction and spread of weeds, competition with native herbivores, damage to biological soil crusts, soil erosion, and damage to habitat (from soil compaction, creation of disturbed soils, burrow collapse, and others). It can be difficult to target use to achieve the desired effects. In some areas, trained goats have been used to remove biomass in large weed infestations.	Remove biomass and thatch build-up to achieve low-structure habitat in threatened and endangered animal core areas.
Herbicides	Spraying individual plants or populations, sometimes in conjunction with stump-cutting. Spraying specific project areas. Good for small to medium projects, cost-effective weed control, essential for eradication of some problematical species. Negative impacts related to potential human and ecological exposures to chemicals.	Target spraying to eradicate or control exotic weeds. Area spraying to eliminate annual exotics immediately before restoration seeding or as a means to promote native species.
Seeding	Hand-seeding, seeding by equipment, planting plugs or individual plants, inoculation with cryptogamic crust species or mycorrhizae. Good for small to large-scale projects.	Hand-seeding and planting small restoration projects or to introduce seed source islands within partially restored native habitat. Seeding with a range drill or other agricultural machinery for large-scale restoration of native species. Inoculation to restore cryptogamic crusts or help plant establishment.
Watering	Supplemental water, drip irrigation	Supply water to increase success of restoration efforts, to enhance seed production, and for ornamental or historical plantings.
Biological control	Release of specific organisms on target populations. Good for large-scale targets. Possible impacts if organism shifts to new host.	Release of biological control organisms to control widespread and relatively common nonnative species.

- *Goal BIO-3(P)*: Manage the CPNM in a manner that emphasizes its critical importance for threatened and endangered species conservation and recovery of rare natural communities, and conservation of the regional landscape.
- *Goal BIO-4(P)*: Identify core geographic areas for endangered animal species population management and recovery. Within these core areas, endangered species habitat will be a primary management priority relative to other resources and uses. Tools to manage core areas will be chosen to achieve target endangered species objectives, while minimizing any negative impacts to other native organisms or important ecological processes.

II.B.4.3 Objectives and Management Actions

II.B.4.3.1 All Wildlife and Vegetation Resources

Objective BIO-1(P): Design all projects to minimize adverse impacts to wildlife and vegetation.

Management Action:

- *Action BIO-1(P)*: Implement the SOPs contained in Attachment 3 (SOPs and Implementation Guidelines for Projects Affecting the Biological Environment) and Attachment 4 (Minerals SOPs / BMPs / Implementation Guidelines and Conditions of Approval), as appropriate, in the subsequent site-specific NEPA process for all project work on the Monument.
- *Action BIO-2(S)*: When necessary, oil and gas related actions will require individual Section 7 consultations. Programmatic consultation will not be used for oil and gas related actions.

II.B.4.3.2 Rare Plants

Objective BIO-2(P): Maintain and enhance viable populations of threatened and endangered and other rare plants on the Monument. Allow populations to naturally fluctuate (population size and distribution), due to natural influences, but minimize impacts from human activities and prevent populations from falling below critical levels. Protect rare plant populations and rare plant habitat from impacts due to actions associated with allowable uses authorized under the RMP.

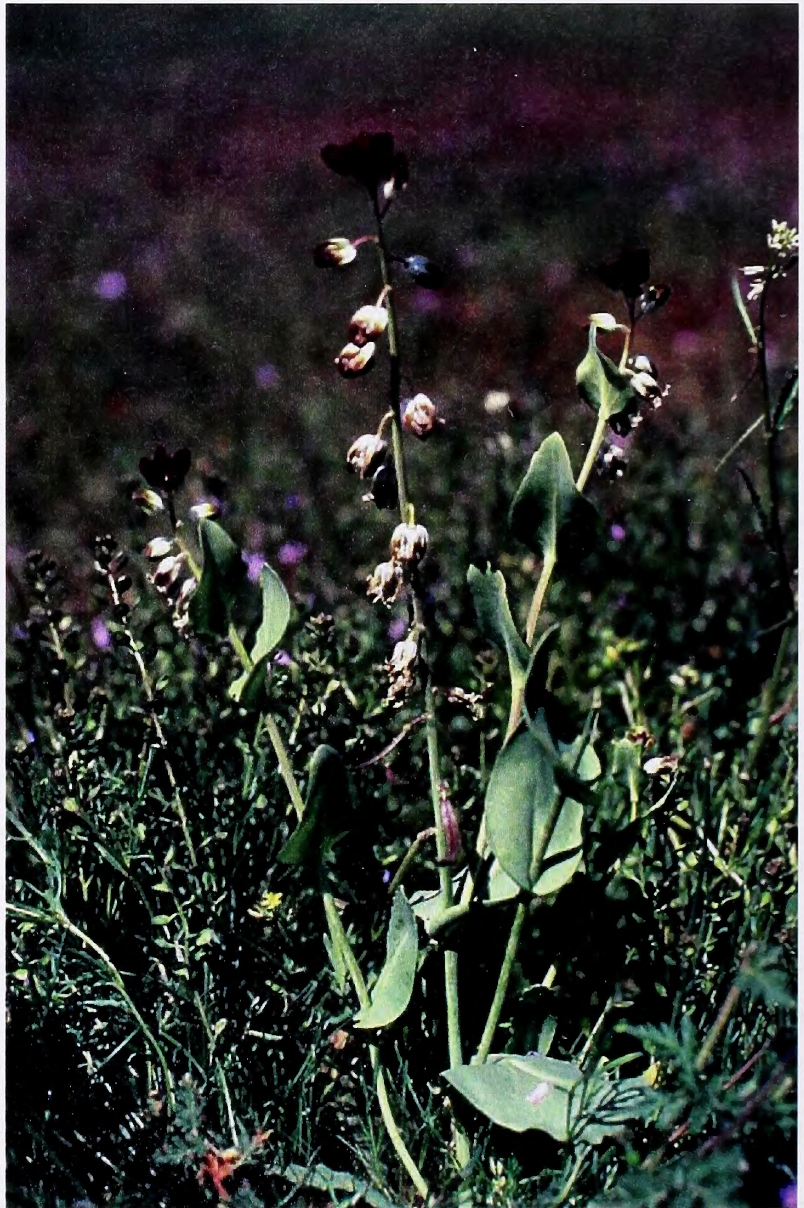


Photo 2: California Jewelflower (BLM File)

Management Actions

- *Action BIO-3(S)*: Map populations of threatened and endangered and other rare plants on the Monument. Map potential rare plant habitat.
- *Action BIO-4(S)*: Monitor to confirm continued presence of rare plant populations and status of pollinator communities. Identify rare plant habitat parameters, pollinators, and pollinator habitat (nesting sites, additional foraging areas, and others). Identify impacts to rare plant populations and associated pollinator communities.
- *Action BIO-5(S)*: Support research that identifies and defines factors that influence population trends of target species. Support research on the biology/ecology of target species.
- *Action BIO-6(I*)*: Protect rare plants and associated pollinator habitat. Manage rare plant populations and rare plant habitat as identified in the Conservation Target Table (Attachment 5) and using tools as outlined in the Vegetation Management Toolbox. Protect vulnerable habitat by changing management prescriptions or management actions, such as removing weeds from rare plant habitat, relocating potentially damaging activities, restricting or eliminating grazing, and realigning or closing roads.
- *Action BIO-7(I)*: Design other management actions to avoid direct impacts. If a threat is observed, take action to protect the species or habitat. Reduce competition from weedy species. Modify, restrict, or prohibit livestock grazing to protect rare plant habitat. If necessary, fence known sites and adjacent suitable habitat to preclude damage (such as from illegal off-road vehicle activity).
- *Action BIO-8(I*)*: Promote seed bank recharge. Restore or establish populations in suitable habitats, including new population sites and in previously cultivated or degraded areas. Store germplasm with the Center for Plant Conservation national collection of endangered plants.

II.B.4.3.3 Native Plants

Objective BIO-14(P): Maintain, increase, and restore ecologically important plant communities and populations. Examples include native perennial grasslands, alkali sink, saltbrush scrub, upper Sonoran sub-shrub scrub, vernal pools, bulb plants, native grasses, annual and perennial herbs, wildflowers, biological crusts, Alvord and blue oaks, yuccas, saltbush, ephedra, and manzanita.

Management Actions

- *Action BIO-45(S)*: Map ecologically important plant communities and populations. For communities, follow nomenclature system developed by Sawyer and Keeler-Wolf (1995).
- *Action BIO-46(I*)*: Monitor target plants and communities to determine status and trends. Identify potential and current threats. Initiate management actions to abate threats, increase populations of target species, and benefit native plant communities. Protect from negative impacts from livestock grazing. Control nonnative species. Manage select native plant resources and habitat as identified in the Conservation Target Table (Attachment 5).
- *Action BIO-47(S)*: Support research related to the management of CPNM plant communities and individual plant species. Initiate studies to define important community parameters and design threshold values for management actions. Support research on the biology/ecology of target species.
- *Action BIO-48(I*)*: Maintain and restore plant populations and communities, especially in areas of degraded habitat (for example, previously cultivated fields). Supplement natural processes with an active restoration program. Include mycorrhizae and biological soil crust organisms in restoration actions. Use vegetation management tools as described in Table II.B.4-1, Vegetation Management

Toolbox. Choose the tool that achieves the desired objective, with a minimum of negative impacts to other botanical resources (grazing would not be used as a tool for botanical resource restoration).

- *Action BIO-49(I*)*: Restore native herblands and grasslands by seeding with site-appropriate native species, including seeds or propagules of bulbs and other perennial herbs in the restoration of previously cultivated or degraded fields. Increase seed and other material for restoration by cultivating target species off-site under agricultural conditions. Work to limit wild pig and domestic sheep (trespass) damage to bulbs and herbaceous perennial plants.
- *Action BIO-50(I*)*: Increase saltbush and other shrub communities by management and active restoration. Protect saltbush and other vulnerable shrub communities from fire. Restrict livestock grazing in saltbush and other shrub communities, unless evidence shows that management objectives cannot be met in a less-impacting manner. Monitor to demonstrate that target biological objectives are accomplished and monitor to document impacts to shrub communities. Restrict livestock grazing in saltbush recruitment years. Work to minimize foraging of livestock on saltbush and other native shrubs. Establish new saltbush and shrub populations in appropriate sites. Seek to reestablish landscape water flow patterns (for example, alluvial fans disrupted by roads) to promote shrub recruitment.
- *Action BIO-51(I*)*: Restore blue and Alvord oak habitat and facilitate recruitment of new trees. Protect oak trees from detrimental impacts associated with livestock grazing or eliminate livestock grazing from oak habitat. Restore leaf litter mulch and soil functions beneath tree canopies and inoculate with mulch/soil organisms from healthy oaks. Establish new oak trees in areas previously shown to have trees and in other appropriate sites. Provide supplemental water if necessary to ensure recruitment success. Protect oaks from devastating fires.
- *Action BIO-52(I*)*: Protect and restore vernal pool vegetation and crust communities in ecologically appropriate sites. Minimize negative impacts by livestock, horse, or human travel. Initiate studies to determine effects of livestock grazing on vernal pool vegetation and Carrizo crust communities and the feasibility of establishing/reestablishing vernal pools and crust communities in previously cultivated, grazed, or otherwise impacted areas. Work to restore crust communities.
- *Action BIO-53(I*)*: Protect crust communities and other vulnerable moss and lichen populations. Monitor non-vascular plants to determine impacts of management actions. To protect sensitive sites, take actions such as redesigning project footprints, or restricting access and grazing. Protect rock outcrops that receive regular visitation. Take actions, such as education and signing, to prevent new trails that damage moss or lichen communities.

II.B.4.3.4 Nonnative Plants

Objective BIO-21(P): Control the spread of nonnative weedy species (CDFA 2007, CDFA 2008, Cal-IPC 2008) and other nonnative plants.

Management Actions

- *Action BIO-81(I)*: Follow integrated pest management principles (BLM 1992). Each infestation will be evaluated as to the best control methods. Criteria include growth characteristics, seed production and dispersal, life history stage, size of infestation, difficulty of control, and previous control methods. Treatment will use the appropriate method(s), as identified in Table II.B.4-1, Management Toolbox. Monitor to determine effectiveness of control measures.
- *Action BIO-82(I)*: Monitor to detect new nonnative populations and aggressively work to eliminate founder populations before they can spread.

- *Action BIO-83(I)*: Work to eradicate target weed species such as yellow star thistle, bull thistle, tamarisk, hoary cress, and Russian knapweed. Control and eradicate tree-of-heaven and, for plantings that have cultural or biological importance, replace with native or historically acceptable non-invasive species. Work on landscape-wide methods for controlling widespread species such as Russian thistle and horehound.
- *Action BIO-84(I)*: On a landscape level, design and implement measures to suppress nonnative annual grasses and herbs. Seed with native species, as applicable.
- *Action BIO-85(I)*: Implement measures to minimize the spread of weeds by livestock and equestrian activities (for example, encourage weed-free husbandry, prohibit cleaning of horse trailers on the Monument, encourage the use of weed-free hay, and monitor corrals and holding pens).
- *Action BIO-86(I)*: Remove nonnative weeds and restore native vegetation to disturbed areas that were created by past grazing activities. These include areas around troughs, corrals, and other locations where intense livestock presence resulted in a replacement of native vegetation with nonnative species such as wild barley, bromes, mustards, cheeseweed, and horehound.

II.B.4.3.5 Core Area Threatened and Endangered Animals

Objective BIO-3(P): Maintain and enhance viable populations within core areas of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel. Within the core areas, allow the populations of these target species to naturally fluctuate up and down in terms of number and distribution, but initiate management actions when populations approach target minimums (population threshold values).

Management Actions

- *Action BIO-9(I)*: Identify and map core areas for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (core area species). Preliminary core areas are shown on Map 3-2, Special Status Animals. Focus habitat management for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, San Joaquin antelope squirrel, and mountain plover on these core areas. Manage core areas so they provide a “safety net” to maintain viable populations in all years (within management capability) and to prevent core area species from disappearing from the Monument. Core areas are determined by having persistent populations of the core area species, having suitable habitat in most years, being of a size that can be effectively treated with vegetation / habitat management prescriptions when required, and being of a size that has a high likelihood of maintaining a viable population of the core area species when vegetation management is applied.
- *Action BIO-10(I)*: Monitor populations to determine trends and further define minimum population threshold values to identify when to take management actions. If populations approach target minimums, initiate management actions depending on species’ characteristics and specific factors influencing population trends as identified in the Conservation Target Table (Attachment 5).
- *Action BIO-11(S)*: Support research that identifies and defines factors that influence population trends of target species. Support research on the biology/ecology of target species.
- *Action BIO-12(I)*: Manage core area habitat to promote the more open, desert-like structure favored by the core area species. In those years when core area species populations are low and vegetation structure is above optimum, as identified in the Conservation Target Table (Attachment 5), use the vegetation management tools included in the Vegetation Management Toolbox.
- *Action BIO-13(I*)*: Take measures to reduce mortality of target species, such as reducing vehicle strikes on roads within core areas, removing problem raptor perches, and maintaining escape cover.

- *Action BIO-14(I*)*: Reestablish populations in core areas, if necessary, through translocation.

II.B.4.3.6 Non-Core Area Threatened and Endangered Animals

Objective BIO-15(P): Maintain viable populations of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (target species) within the Monument, with emphasis on the subregions listed in Table II.B.4-2.

Table II.B.4-2. Target Species and Their Ecological Subregions

	Caliente Mountain South	Temblor Range	Panorama Hills / Elkhorn Plain	Carrizo Plain Central	Carrizo Plain North	Soda Lake	Caliente Foothills South
Giant kangaroo rat	X	X	X	X	X		
Blunt-nosed leopard lizard	X		X	X			X
San Joaquin kit fox	X		X	X	X	X	
San Joaquin antelope squirrel	X	X	X	X	X	X	

Allow the populations of these target species to naturally fluctuate, in number and distribution, but take action to prevent populations from disappearing from the Monument.

Management Actions

- *Action BIO-54(S)*: Monitor populations to determine trends and further define minimum population threshold values.
- *Action BIO-55(I)*: If necessary to prevent target species populations from disappearing from the Monument, take action in non-core habitat as well as in core habitat as identified in the Conservation Target Table (Attachment 5). The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in Figure II.B.4-1. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.
- *Action BIO-56(S)*: Encourage partnerships with private landowners within habitat areas to manage target populations and habitat in concert with BLM goals.

II.B.4.3.7 Native Ungulates

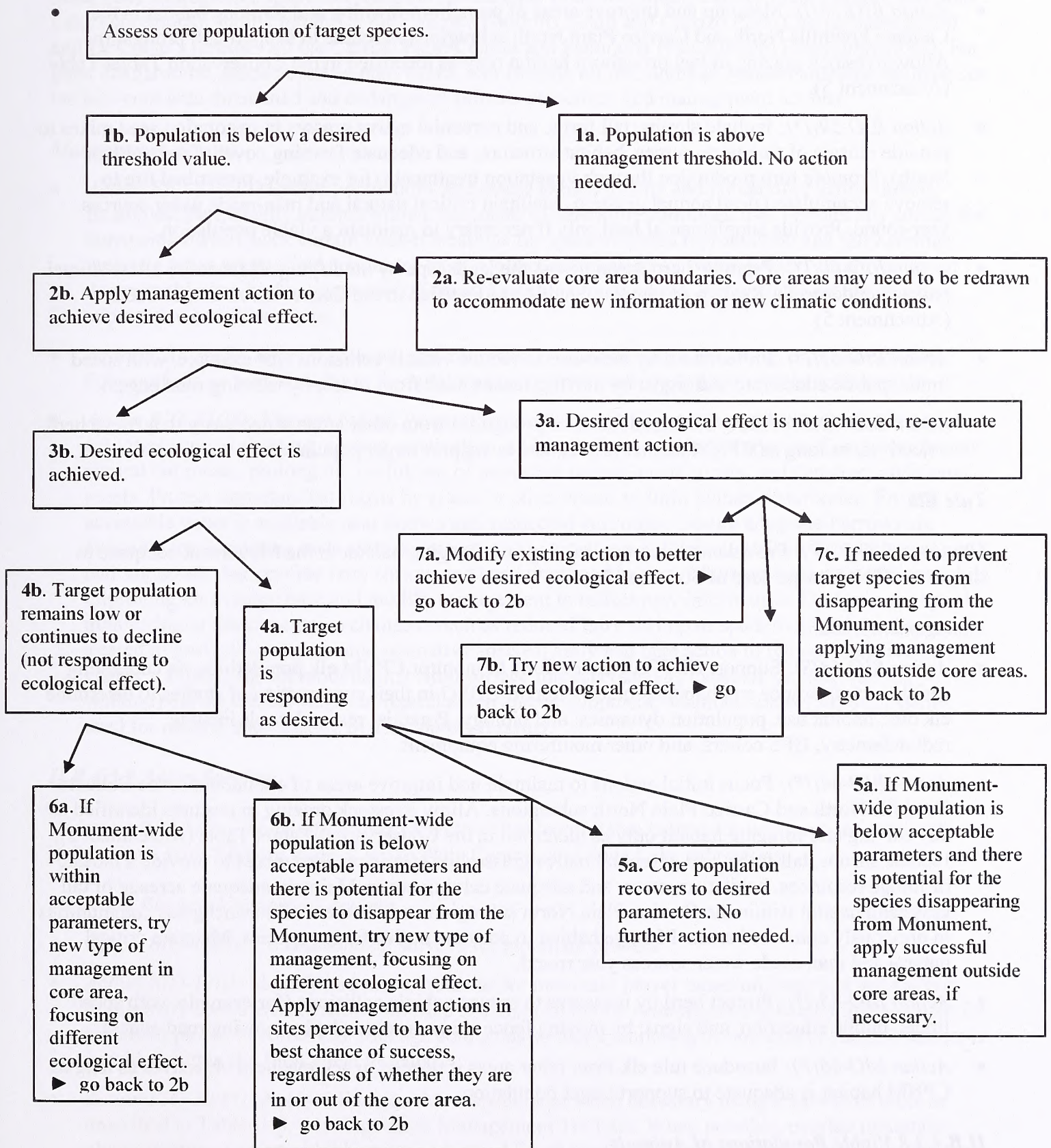
Pronghorn

Objective BIO-16(P): Develop and maintain a CPNM herd of 250 pronghorn. Implement management actions to improve the quality of fawning and foraging habitat.

Management Actions

- *Action BIO-57(S)*: Support CDFG in efforts to monitor CPNM pronghorn populations via continuing aerial reconnaissance and habitat studies. Support CDFG in initiating new studies to determine

Figure II.B.4-1. Decision Tree for Management of San Joaquin Valley Target Species in Non-Core Areas



pronghorn diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, geographic positioning system (GPS) collars, and other monitoring equipment.

- *Action BIO-58(I)*: Maintain and improve areas of pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions adequate to support 250 pronghorn. Allow livestock grazing in key pronghorn habitat only as identified in the Conservation Target Table (Attachment 5).
- *Action BIO-59(I*)*: Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide mosaic of forage resources, habitat structure, and adequate fawning cover (Carrizo Plain North). Promote forb production through vegetation treatments (for example, prescribed fire to remove accumulated dead annual grasses). Maintain critical natural and man-made water sources year-round. Provide supplemental feed only if necessary to maintain a viable population.
- *Action BIO-60(I*)*: Promote herd travel across the landscape by modifying all fences to allow animal passage underneath. Realign or remove fencing as identified in the Conservation Target Table (Attachment 5).
- *Action BIO-61(I*)*: Protect herd by measures to reduce vehicle collisions (for example, with speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- *Action BIO-62(P)*: Allow the introduction of pronghorn from other areas if necessary to achieve herd objectives, as long as CPNM habitat is adequate to support target population.

Tule Elk

Objective BIO-17(P): Provide and improve calving and foraging habitat in the Monument adequate to support a CPNM-based herd of 500 tule elk.

Management Actions

- *Action BIO-63(S)*: Support CDFG in their efforts to monitor CPNM elk populations via continuing aerial reconnaissance and habitat studies. Support CDFG in their continuation of studies to determine elk diet, habitat use, population dynamics, and biology. Potential research tools include radiotelemetry, GPS collars, and other monitoring equipment.
- *Action BIO-64(I*)*: Focus initial actions to maintain and improve areas of elk habitat in the Caliente Foothills North and Carrizo Plain North subregions. Allow livestock grazing in pastures identified as key calving and foraging habitat only as identified in the Conservation Target Table (Attachment 5). Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide a mosaic of forage resources, habitat structure, and adequate calving cover. Maintain adequate acreage of tall grassland habitat within the Carrizo Plain North subregion and restore native bunchgrass communities in previously cultivated areas. Manage habitat to promote native forage species. Maintain critical natural and man-made water sources year round.
- *Action BIO-65(I*)*: Protect herd by measures to reduce vehicle collisions (for example, with speed limits, public education, and signs; by moving fences back from roads; by mowing road edges).
- *Action BIO-66(P)*: Introduce tule elk from other areas if needed to achieve herd objectives as long as CPNM habitat is adequate to support target population.

II.B.4.3.8 Viable Populations of Animals

Objective BIO-4(P): Maintain or increase viable populations of special status, declining, or unique species within the Monument. Maintain viable populations for species such as bats (in the Caliente

Foothills North, Carrizo Plain Central, Caliente Mountain South, and Caliente Mountain North subregions), burrowing owls, fairy shrimp (in the Caliente Foothills South, Carrizo Plain Central, and Soda Lake subregions), spadefoot toads (in the Caliente Foothills South, Carrizo Plain Central, and Soda Lake subregions), sphinx moths (in the Caliente Foothills South and Carrizo Plain Central subregions) and Le Conte's thrasher (in the Carrizo Plain Central and Panorama Hills/Elkhorn Plain subregions). For giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel, see the non-core area threatened and endangered animals objectives and management actions.

Management Actions

- *Action BIO-15(S):* Monitor populations and assess habitat quality and potential or actual threats. Examples: Periodically monitor known bat roosts to determine continued use. Periodically survey for burrowing owls. Check certain known locations for spadefoot toad reproduction and fairy shrimp presence when appropriate conditions exist. Collect information on water quality, shrimp and toad demographics, and other parameters. Survey for sphinx moth adults, larvae, and host plants when appropriate conditions exist.
- *Action BIO-16(S):* Support research and education on special status, declining, or unique species. Focus efforts on topics useful in formulating management actions and to promote conservation.
- *Action BIO-17(I*):* Manage habitat (vegetation and features) to provide suitable areas for essential activities such as roosting, nesting, aestivation, and reproduction of target species. Examples: Protect natural bat roosts, prolong the usefulness of important human-made roosts, and construct additional roosts. Protect important bat roosts by grates or other means to limit human disturbance. Ensure accessible water is available near known and suspected bat roosts. Ensure adequate burrows are available for burrowing owls and take measures to protect against vehicle strikes. Protect vernal pools and sag ponds that provide fairy shrimp and spadefoot toad habitat. Maintain current conditions while improving knowledge base and modify management to reflect new information. Design vernal pool monitoring to detect negative changes (such as reduced fairy shrimp or spadefoot toad numbers, altered hydrology, or detrimental nonnative species) early and take action to remedy negative changes. Protect sphinx moth habitat from surface impacts (such as livestock grazing, horses, walking) during critical stages of reproduction and development. Maintain known saltbush stands used for nesting and roosting by Le Conte's thrasher.

II.B.4.3.9 Avian Species

Objective BIO-5(P) – Mountain Plover Objective: Provide suitable habitat for wintering mountain plover in Panorama Hills/Elkhorn Plain, Carrizo Plain Central, and Soda Lake subregions.

Mountain Plover Management Actions

- *Action BIO-18(S):* Conduct annual surveys for mountain plovers
- *Action BIO-19(I):* Identify and map core areas for mountain plover based on historical use patterns. Preliminary core areas are shown on Map 3-2, Special Status Animals. Focus habitat management for mountain plover to core areas. Manage core areas so that a minimum of one area of suitable habitat is provided within the Monument boundary.
- *Action BIO-20(I*):* Apply fall vegetation management when necessary using a variety of tools as described in Table II.B.4-1, Vegetation Management Toolbox. When possible, overlap mountain plover treatment areas with blunt-nosed leopard lizard treatment areas to provide low structure for both species.

Objective BIO-6(P) – California Condor Objective: Maintain unobstructed condor habitat in the Caliente Mountain North, Caliente Mountain South, and Temblor Range subregions. Maintain suitable foraging habitat for condors in the Panorama Hills/Elkhorn Plain, Carrizo Plain Central, and Caliente Foothills South subregions.

California Condor Management Actions

- *Action BIO-21(P):* Restrict or prohibit the placement of new transmission lines, towers, or other potentially disruptive constructs in condor habitat.
- *Action BIO-22(S):* Work with existing right-of-way holders to make existing structures condor safe.
- *Action BIO-23(S):* Support USFWS in implementing recovery actions, such as establishing supplemental feeding stations or condor monitoring.

Objective BIO-7(P) – Roosting Shorebirds, Cranes, Curlews, and Waterfowl Objective: Maintain roosting habitat for shorebirds, cranes, long-billed curlews, and waterfowl in the Soda Lake subregion.

Roosting Shorebirds, Cranes, Curlews, and Waterfowl Management Actions

- *Action BIO-24(S):* Conduct annual surveys for long-billed curlews or other species.
- *Action BIO-25(I*):* Support research to determine factors affecting roosting and foraging habitat quality and take appropriate management actions if habitat deteriorates.
- *Action BIO-26(I*):* Protect roosting habitat at Soda Lake from human disturbance. Design facilities and manage public access to minimize detrimental interaction between roosting birds and the public.

Objective BIO-18(P) – Nesting Sites and Habitat Objective: Maintain or improve nesting, roosting, and foraging habitat for raptors (Caliente Mountain South, Caliente Mountain North subregions) and ground-nesting birds such as grasshopper sparrow and short-eared owl (Caliente Foothills North, Carrizo Plain North, Soda Lake subregions), and migratory birds (Caliente Foothills South, Caliente Foothills North, Carrizo Plain North, Soda Lake subregions). Maintain or improve wintering habitat for raptors.

Nesting Sites and Habitat Management Actions

- *Action BIO-67(S):* Conduct annual surveys for wintering raptors. Occasionally survey for additional species (such as tricolored blackbirds).
- *Action BIO-68(S):* Conduct inventories to determine raptor nesting sites.
- *Action BIO-69(I*):* Protect nesting raptors from human disturbance at Selby Rocks, Painted Rock, and other nesting locations, but allow actions to protect rock art from bird



Photo 3: Long-Eared Owls Roosting (BLM File)

excrement. Examples: limit public access to sensitive sites during nesting season, post signs and restrict climbing on rocks during nesting season.

- *Action BIO-70(I*)*: Allow certain nonnative trees and human structures to remain in place as habitat for birds. Construct new structures or plant additional trees in appropriate locations such as established major campgrounds and Monument buildings. Select species that are native to the area or are non-invasive and historically appropriate (such as black walnut).
- *Action BIO-71(S)*: Support research to understand regional importance as a nesting and wintering site for raptors and ground-nesting birds.
- *Action BIO-72(I*)*: Apply a variety of treatments (mowing, livestock grazing, burning, native planting and others as described under Table II.B.4-1, Vegetation Management Toolbox) to create a mosaic of habitat types and structures to provide for a variety of species as necessary or as warranted.
- *Action BIO-73(I)*: Livestock grazing within the Carrizo Plain North subregion will be done in a manner that minimizes impacts to shrubs, tall forbs, and perennial native grasses as identified in the Conservation Target Table (Attachment 5).
- *Action BIO-74(I)*: Discourage use of polypropylene twine at gates and other facilities in the Monument to prevent its use as a nesting material and potential entanglement of birds. Remove and replace existing polypropylene twine at gates and facilities.
- *Action BIO-75(S)*: Take measures – such as those described in *Suggested Practices for Avian Protection On Power Lines, The State of the Art in 2006* (Avian Power Line Interaction Committee 2006) – to minimize bird mortalities caused by electrocution along power lines within the Monument (Caliente Mountain North/South, Temblor Range).

Objective BIO-19(P) – Upland Game Birds Objective: Maintain suitable habitat for upland game birds and allow for continuation of existing artificial water sources.

Upland Game Birds Management Action

- *Action BIO-76(I*)*: Allow maintenance, replacement, and removal of existing artificial water developments, such as guzzlers. New water developments may be allowed if proposed by CDFG and compatible with biological, cultural, and wilderness objectives.

II.B.4.3.10 Nonnative Animals and Captive-Held Native Animals

Objective BIO-20(P): Control the spread of nonnative animals. Minimize disease transmission, harassment, and competition from nonnative animals and from native animals that have been held in captivity.

Management Actions

- *Action BIO-77(I)*: Control and eliminate, when possible, nonnative animals such as wild pigs and honeybees that may have negative impacts on habitat or other species. Potential methods to control pigs include hunting, fencing, and trapping. Potential methods to control honeybees include physical removal of hives, entombment, traps, insecticides, and poison bait stations.
- *Action BIO-78(P)*: Prohibit the release of nonnative animals except for the use of approved biocontrol agents or the authorized use of livestock.
- *Action BIO-79(P)*: Prohibit the release of native animals that have been held in captivity unless the release is required to meet Monument objectives, such as augmentation or reestablishment of an

endangered or threatened species like the Kern primrose sphinx moth; reestablishment of giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, or San Joaquin antelope squirrel in core areas; or the release of pronghorn or elk if necessary to meet herd objectives.

- *Action BIO-80(I)*: Take protective measures if pets from visitors or private lands are causing wildlife depredation or other ecological damage. Examples: Require pets to be leashed or controlled at all times, require pet owners to remove fecal material, and contact owners if free-roaming pets from private lands are causing impacts. Pets shall remain leashed at all developed sites including visitor centers, interpretive overlooks, and camping areas.

II.B.4.3.11 Habitat Structure Diversity

Objective BIO-8(P): Maintain or increase the diversity of habitat in terms of structure, composition, and patchiness.

Management Actions

- *Action BIO-27(S)*: Across the Monument, monitor the distribution, amount, and structure of shrub, woodland, and crust communities; the structure (height and density) of the herbaceous understory; and the general species composition of the plant communities. Develop spatial data (maps) to evaluate the distribution and extent of these characteristics in meeting management objectives.
- *Action BIO-28(I*)*: Manage lands to provide a variety and mosaic of vegetative assemblages, successional stages, habitats, and structure for the purposes of increasing plant and animal species diversity. For active management, use vegetation management tools as described in Table II.B.4-1, Vegetation Management Toolbox. Initial focus would be on lands previously degraded by dryland farming or grazing.

II.B.4.3.12 Linkage

Objective BIO-9(P): Maintain the linkage of natural lands in the CPNM to the San Joaquin Valley by preserving the intact nature of the Temblor Range to maintain genetic and population linkages for San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, and other species.

Management Actions

- *Action BIO-29(I)*: Maintain suitable habitat in the Temblor Range subregion. Manage public use to prevent habitat degradation and fragmentation.
- *Action BIO-30(I*)*: Identify and protect important linking habitat through acquisition or other methods.

II.B.4.3.13 Riparian Areas

Objective BIO-10(P): Restore all riparian areas, seeps, and springs to proper functioning condition or better (Caliente Mountain South/North, Temblor Range, Caliente Foothills South/North subregions).

Management Actions

- *Action BIO-31(I*)*: Restore degraded riparian areas using a variety of methods. Examples: fence to exclude livestock, remove alterations/redesign developed springs, seed or plant with appropriate native species to stabilize channels.

- *Action BIO-32(I*)*: Take measures to limit the deleterious actions of wild pigs, such as monitoring, fencing, and hunting.
- *Action BIO-33(I*)*: Identify and protect riparian areas that may appear only in very wet years. Examples: fence areas to prevent degradation and realign roads to avoid sites.

II.B.4.3.14 Soda Lake

Objective BIO-11(P): Maintain the ecological processes and hydrologic vitality (quality, quantity, and flow patterns) of Soda Lake, its playas, and associated swale system.

Management Actions

- *Action BIO-34(I*)*: Monitor water flow patterns, potential threats to water quality, and general ecosystem health of the Soda Lake system. Respond to threats by management actions tailored to the specific problem (for example, use fencing to discourage dump sites and off-road activity, keep livestock out of rare plant habitat, such as that of *Delphinium recurvatum*).
- *Action BIO-35(S)*: Identify adjacent lands important in maintaining water quality for the Soda Lake system. Coordinate with adjacent landowners to eliminate or minimize contamination (for example, clean up recent dumps, pursue conservation easements or land acquisition).
- *Action BIO-36(I*)*: Eliminate salt cedar and all other problematic nonnative species from the Soda Lake system.
- *Action BIO-37(S)*: Design any new trails, pull-outs, parking areas, and other facilities to minimize disruption of ecological processes and hydrologic vitality.

II.B.4.3.15 Vernal Pools and Sag Ponds

Objective BIO-12(P): Protect the Monument's vernal pool and sag pond habitats by maintaining their ecological processes and hydrologic vitality (primarily Caliente Foothills South and Soda Lake subregions).

Management Actions

- *Action BIO-38(S)*: Monitor water chemistry, species composition, and other important ecological factors. Identify and map vernal pool sites, including those that appear only in years of excessive precipitation (for example, El Niño years). Work to understand hydrological parameters important in maintaining pool ecosystems. Better define habitat characteristics for pools and determine if they have the potential to form in areas that have previously been cultivated.
- *Action BIO-39(S)*: Determine the role of livestock grazing in maintaining characteristics necessary for the health and viability of fairy shrimp populations.
- *Action BIO-40(I*)*: Take measures to eliminate nonnative species (such as pepperweed, Russian knapweed and bullfrogs) from vernal pools and surrounding areas.



Photo 4: Monitoring in Vernal Pools (BLM File)

- *Action BIO-41(I)*: Ensure that BLM actions and authorizations are designed to avoid impacts to vernal pools. Manage vernal pools that provide longhorn fairy shrimp, vernal pool fairy shrimp, and spadefoot toad habitat within the North Carrizo and South Carrizo Vernal Pool Core Areas consistent with the Vernal Pool Recovery Plan.

II.B.4.3.16 Research and Inventory

Objective BIO-13(P): Improve knowledge of the species present on the Monument and understanding of the natural and ecological processes that influence local ecosystems.

Management Actions

- *Action BIO-42(S)*: Inventory taxa that are not well studied or understood, such as insects, other invertebrates, fungi, lichens, and bryophytes. Continue updating existing inventories (plants, mammals, birds, and other species).
- *Action BIO-43(S)*: Support inventories, monitoring, and research that identifies and defines factors that influence species population trends, especially listed and special status species. Support other research within the Monument on the biology of CPNM species.
- *Action BIO-44(I)*: Establish and maintain non-managed areas to compare the effects of purely natural processes with those influenced by agency management actions. Investigate the potential of setting aside “hands-off” areas where little to no management actions would occur. One management exception may be for the treatment of noxious or problematic weedy species.

II.B.4.3.17 Fire

Objective BIO-22(P): Maintain the natural role of fire in the landscape where feasible.

Management Actions

- *Action BIO-87(I)*: Manage fire (prescribed and wildfire) in the Caliente Mountains North subregion to mimic natural return interval.
- *Action BIO-88(I)*: Use fire as a habitat management tool to promote native species.
- *Action BIO-89(I)*: Take measures to increase our understanding of native people’s historic use of fire and historic fire return intervals to aid in current management applications.

II.B.4.3.18 Protected Land

Objective BIO-23(P): Direct acquisition efforts to acquire lands with important biological resources, especially those that are poorly represented in public ownership.

Management Actions

- *Action BIO-90(I)*: Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, and management needs.
- *Action BIO-91(I)*: Identify target inholdings. Encourage sale or transference of target properties through a variety of methods/incentives.
 - Primary focus would be to acquire property that supports habitat and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.

- Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and playa system) that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel), or that support other important CPNM species (spadefoot toads, fairy shrimp, mountain plover, and rare plants).
- *Action BIO-92(I)*: Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.
- *Action BIO-93(I)*: Target other inholdings that may have management needs or risk of development or occupancy.
- *Action BIO-94(I)*: Develop and maintain a geographic information system (GIS) database showing the location of target resources to facilitate acquisition efforts

II.B.5 Fire and Fuels Management

Management of fire and fuels involves achieving a balance between fire suppression activities to protect life, property, and resources, and the use of fire and other mechanical tools to regulate fuels and maintain healthy ecosystems. A consistent set of fire management policies for all federal lands was first outlined in 1995 with the *Federal Wildland Fire Management Policy and Program Review* (USDI and USDA 1995). Several guiding principles were recognized in this policy regarding the natural role of fire as a change agent, the need to fully integrate wildland fire management into land management planning, and recognition of the importance of local interagency coordination and cooperation, which are facilitated by standardization of policies and procedures among federal agencies. Further refinements of the national policy have occurred since 1995, including the *Review and Update of the 1995 Federal Wildland Fire Management Policy* (USDI et al. 2001), the *Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy* (USDI and USDA 2003), and the *Guidance for Implementation of Federal Wildland Fire Management Policy* (USDI and USDA 2009).

The Federal Wildland Fire Policy put in place a three-tier planning system for fire management:

- Land use planning, such as this RMP, to outline overall land use goals, objectives, and actions;
- Fire management plan (FMP), which serves as the functional activity-level plan for the fire management program; and
- Implementation plans, which are site-specific direction, such as prescribed fire plans, modified suppression plans and other decision support documents to determine the response to specific wildland fire incidents.

The Bakersfield Field Office completed a FMP in September 2004. In this plan, the CPNM was addressed as a separate fire management unit (FMU). Following completion of this RMP, the FMP will be reviewed and made consistent with any new decisions in this land use plan.

Some of the terms used are briefly defined below.

Response to Wildland Fire: The response to a wildland fire based on an evaluation of risks to firefighter and public safety; the circumstances under which the fire occurs, including weather and fuel conditions; and natural and cultural resource management objectives, protection priorities, and values to be protected. The response to wildland fire ranges across a spectrum of tactical options from monitoring the fire to intensive suppression actions.

Wildfire: An unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized and accidental human-caused fires) and escaped prescribed fires.

Prescribed Fire: A wildland fire originating from a planned ignition to meet specific objectives identified in a written, approved, prescribed fire plan.

Use of Wildland Fire: Management of either wildfire or prescribed fire to meet resource objectives specified in RMPs.

II.B.5.1 Goals

- *Goal FIRE-1(P):* Ensure that protection of human life is the single, overriding priority in all fire management activities.
- *Goal FIRE-2(P):* Manage fuels and wildfire suppression actions to avoid resource damage from catastrophic fire.
- *Goal FIRE-3(P):* Restore natural role of fire in the ecosystem.

II.B.5.2 Objectives and Management Actions

Objective FIRE-1(P): Determine the response to fire based on the likely consequences to firefighter and public safety and welfare, natural and cultural resources, and values to be protected.

Management Actions

- *Action FIRE-1(P):* Use a decision support process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions.
- *Action FIRE-2(P):* Fight fire safely by following procedures in the *Interagency Standards for Fire and Fire Aviation Operations* (USDI and USDA 2008).
- *Action FIRE-3(P):* Coordinate closely with interagency fire suppression partners to ensure that resource protection strategies are understood and implemented. Continue to include a modified suppression plan in the Central Coast Operating Plan to outline fire suppression guidelines to fire suppression partners.
- *Action FIRE-4(P):* Utilize existing natural and human-made barriers (such as roads, trails) where feasible during wildland fire suppression.
- *Action FIRE-5(P):* Utilize minimum impact suppression tactics (MIST) in the Caliente Mountain WSA. Also utilize MIST within the remainder of the primitive recreation management zones, to the extent possible, considering other values at risk to be protected.
- *Action FIRE-6(P):* Avoid the use of fire retardant drops on rock outcrops to prevent damage to sensitive resources, such as rock art, vernal pools, and raptor nesting sites.
- *Action FIRE-7(P):* Avoid aerial or ground application of fire chemicals within 300 feet of waterways in accordance with the *Interagency Standards for Fire and Fire Aviation Operations* (USDI and USDA 2008).
- *Action FIRE-8(P):* Minimize the loss of fire-intolerant saltbush vegetation.

- *Action FIRE-9(P)*: Request a resource advisor familiar with area management objectives and sensitive resource values for all fires burning within the CPNM. Ensure BLM fire suppression personnel are also aware of special resource concerns in CPNM.
- *Action FIRE-10(P)*: Park vehicles and set up suppression support facilities in areas that have already been impacted (such as administrative sites) or locate outside the CPNM.
- *Action FIRE-11(P)*: Take measures to increase our understanding of native people's historic use of fire and historic fire return intervals to aid in current management applications.

Objective FIRE-2(P): Determine post-fire effects of all wildland fires and determine needed actions.

Management Actions

- *Action FIRE-12(P)*: Assess all wildland fires for emergency stabilization and rehabilitation needs.
- *Action FIRE-13(P)*: Where emergency stabilization and rehabilitation needs are identified, complete necessary work in a timely and cost-efficient manner.

Objective FIRE-3(I): Follow current wildland fire objectives in the FMP:

- Target wildfire acres burned per decade: approximately 10,000 acres.
- Target individual wildland fire size: 100 acres or less 80 percent of the time.
- Fires on the valley floor burning in grassland areas away from sensitive cultural sites and fire-intolerant shrub areas may be managed using a confine strategy, burning to the nearest roads. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 1,000 acres.

II.B.5.3 Allowable Uses

Allowable Use FIRE-1(P): No areas identified for managing fire (use of wildland fire) to meet resource objectives within the CPNM.

Management Actions

- *Action FIRE-14(I)*: Apply the response to wildland fire using the following assumptions:
 - Actively suppress fires that threaten life, facilities, or private property.
 - Actively suppress fires that threaten fire sensitive natural or cultural resources, such as saltbush or other vulnerable shrub communities, Alvord and blue oak stands, and National Register properties. Active suppression could include aerial attack, mobile attack, handline construction, or dozerline construction (outside of sensitive cultural site areas). Utilize mobile attack in preference to more disturbing methods such as dozerline construction.
 - In other areas, apply a confine strategy, where fires are suppressed when they reach the nearest existing control feature, such as a road.
 - Utilize MIST for fires burning within the Caliente Mountain WSA (17,984 acres). Use MIST to the extent possible, considering other values at risk to be protected, in the remaining primitive recreation management zones, which include an additional 44,471 acres.
 - While considering the above assumptions, the incident commander retains the authority during initial attack to undertake whatever actions are deemed appropriate based on current and

anticipated conditions and resource availability (while considering restrictions to protect sensitive natural and cultural resources). For example, a confine strategy may not be appropriate in times of extremely hot and dry conditions or when multiple incidents in a geographic area have depleted available suppression resources.

- *Action FIRE-15(I)*: Coordinate with biological specialists to utilize prescribed fire to contribute to native species restoration goals and noxious weed control. Prescribed fire would also be used to return fire to its place in the ecosystem, as well as to meet fuel reduction needs. Treat up to 10,000 acres with prescribed fire each decade.
- *Action FIRE-16(I)*: Reduce fuels adjacent to structures and other improvements, as well as along major travel corridors to reduce the number of human-caused ignitions in the CPNM. Treat up to 4,000 acres per decade with non-fire fuels treatment. Treatments could include activities such as mowing along roads and providing vegetation clearance around structures.

II.B.6 Air Quality

The *Clean Air Act* requires federal agencies to comply with federal, state, and local air pollution standards. The *Clean Air Act* also requires each state to develop an implementation plan ensuring that national ambient air quality standards are attained and maintained for criteria pollutants. National standards have been established for six pollutants described in the *Clean Air Act*. Of these six, only one – particulate matter – is substantially affected by natural resource management activities. Most particulate matter produced by wildland fire is less than 10 micrometers in diameter (abbreviated as PM₁₀); this PM₁₀ is the size class of particular concern for human health. Land managers have little control over where, when, and how much smoke is produced during wildfires. However, with prescribed fire, smoke levels can be managed through coordination with regional air quality districts in determining acceptable burn periods.

II.B.6.1 Goal

Goal AIR-1(P): Manage uses to maintain and improve air quality to meet federal and state ambient air quality standards.

II.B.6.2 Objectives

Objective AIR-1(P): Maintain and/or improve air quality to meet all local, state, and federal air quality standards.

Objective AIR-2(P): Utilize the Monument adaptive management program to implement techniques, BMPs, and SOPs to increase beneficial effects and minimize the contribution to global climate change.

Objective AIR-3(P): Improve overall air quality by reducing fugitive dust and particulate matter emissions throughout the Monument.

II.B.6.3 Management Actions

- *Action AIR-1(S)*: Comply with all local, state, and federal air quality regulations when implementing projects.
- *Action AIR-2(I*)*: Consider impacts of climate change on Monument resources and evaluate the contribution of management actions and program activities on climate change.

- *Action AIR-3(I*)*: Use alternative energy sources where feasible on BLM projects and facilities (for example, solar and/or wind).
- *Action AIR-4(I*)*: Minimize dust emissions on roads and while implementing earth-disturbing activities.
- *Action AIR-5(S)*: Use accepted BMPs to minimize the exposure of employees, visitors, and area residents to the spores that may result in valley fever.
- *Action AIR-6(I*)*: Use an aggregate, gravel base, or chemical binder/dust suppressant to cover main BLM roads throughout the Monument, with primary focus on those accessing or passing high-use recreation sites, other areas with high public or resident exposure, and near rock art sites.
- *Action AIR-7(S)*: Coordinate with the county to reduce dust emissions on county roads.
- *Action AIR-8(I*)*: Close and reclaim roads determined redundant or unnecessary as identified in Section II.B.8, Travel Management.
- *Action AIR-9(I*)*: Install solar panels where feasible to replace generators, or use windmills at wells. Rehabilitate existing windmills.
- *Action AIR-10(S)*: Implement BMPs to ensure that all BLM projects minimize air quality impacts and risks to human health and safety (such as the risk of contracting valley fever).
- *Action AIR-11(I*)*: Avoid conducting prescribed fire when weather conditions are likely to result in smoke entering adjacent areas that exceed current air pollution standards (for example, the San Joaquin Valley Air Basin).
- *Action AIR-12(I)*: Avoid burning during high-visitor-use periods to maintain visibility and protect human health and safety. (Examples of predictable high-use days include three-day weekends, holidays, peak flowering periods, and hunting season openings.)

II.B.7 Soils

Soil is essential for the growth of vegetation. Without an intact base of healthy productive soil, watershed management goals for vegetation and wildlife are not achievable. Chemical and biological processes that form soil (for example, rock weathering, organic matter accumulation, plant material decomposition, and nutrient cycling) proceed slowly in the arid environment of the CPNM. Soil recovery processes are also slow. For these reasons, protection of soil ecology and productivity are especially important.

II.B.7.1 Goals

- *Goal SOIL-1(P)*: Achieve desired outcomes for soil resources, such as meeting or exceeding rangeland health standards for Central California.
- *Goal SOIL-2(P)*: Conserve sensitive soils such as the clay dunes and those supporting biological crusts.

II.B.7.2 Objectives

- *Objective SOIL-1(P)*: Maintain soil resources in proper functioning condition (including biological function).
- *Objective SOIL-2(P)*: Conserve and restore areas of biological soil crusts.
- *Objective SOIL-3(P)*: Manage land uses such that erosion and sedimentation rates are appropriate to natural processes, landscapes returning to natural processes, or landscapes under active restoration.

- *Objective SOIL-4(P)*: Gain a better understanding of the processes that may be affecting Monument soils. Take an aggressive approach to help the soils achieve proper functioning condition and educate the users about soil resources and sensitivity.

II.B.7.3 Management Actions

- *Action SOIL-1(I*)*: Identify and evaluate erosion problems and implement corrective actions as needed.
- *Action SOIL-2(I)*: Limit fugitive dust pollution by reducing disturbance to soils.
- *Action SOIL-3(S)*: Incorporate BMPs into project authorizations to minimize erosion/sedimentation and conserve biological soil crusts.
- *Action SOIL-4(S)*: Develop and implement BMPs to reduce the threat of exposure of area residents, visitors, and employees to valley fever.
- *Action SOIL-5(S)*: Assess/inventory soils within CPNM for proper functioning condition using criteria such as Rangeland Health Standards and Guidelines.
- *Action SOIL-6(I*)*: Identify and evaluate erosion problems and implement corrective actions as needed. Develop strategies to improve conditions on soils that are eroding. Priority will be given to human-caused problems that impact natural community processes or areas inhabited by sensitive species.
- *Action SOIL-7(S)*: Conserve/minimize impacts to areas that contain biological soil crusts.
- *Action SOIL-8(I*)*: Consider seasonal closures to areas of sensitive soils.
- *Action SOIL-9(I*)*: Consider seasonal closures on roads where excessive ruts occur to prevent road proliferation and resulting soil impacts such as erosion.

II.B.8 Water Resources

Water quality is typically defined and discussed with respect to recognized water quality indicators. A body of water is considered to be “impaired” under the *Clean Water Act* when it exceeds or fails to achieve the upper or lower limit for one or more of these indicators. The primary indicators of water quality are:

- water temperature
- nutrient levels
- coliform count (fecal bacteria)
- turbidity
- sediment load
- dissolved oxygen
- stream channel condition

The Monument Proclamation explicitly reserves a federal water right subject to valid existing rights:

There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

The CPNM lacks perennial watersheds excepting small seeps and springs and a very short segment of the Cuyama River that touches the southern border. This lack of significant water sources has resulted in relatively limited monitoring of traditional water quality parameters. However, it also makes the available water even more critical to the wildlife and other Monument resources.

II.B.8.1 Goals

- *Goal WTR-1(P)*: Maintain and enhance surface and groundwater quality throughout the Monument.
- *Goal WTR-2(P)*: Protect Soda Lake and other water resources (such as springs).
- *Goal WTR-3(P)*: Maintain hydrologic processes and function of Soda Lake and other Monument watersheds.
- *Goal WTR-4(P)*: Protect a quantity of water sufficient to fulfill the purposes for which the Monument was established.
- *Goal WTR-5(P)*: Maintain groundwater quantity and quality throughout the portion of the Carrizo Plain Groundwater Basin located within the National Monument.

II.B.8.2 Objectives

- *Objective WTR-1(P)*: Maintain and enhance water quality: hydrologic processes, ecosystem, and plant and wildlife communities (see Biological Resources – Objectives and Management Actions, Section II.B.4.3.14, Soda Lake).
- *Objective WTR-2(P)*: Coordinate with appropriate state and federal water quality agencies to ensure that the quality of water entering the Monument is not compromised.
- *Objective WTR-3(P)*: Ensure riparian zones, streams, and floodplains are in proper functioning condition.
- *Objective WTR-4(P)*: Coordinate with state and federal agencies to achieve compliance with the *Clean Water Act* or other applicable regulatory guidance.
- *Objective WTR-5(P)*: Manage upland areas to maintain or improve hydrologic function and minimize adverse downslope impacts.

II.B.8.3 Management Actions

- *Action WTR-1(S)*: Inventory/monitor wetland, riparian, and spring sites.
- *Action WTR-2(I*)*: Fence/protect wetland, riparian, and spring areas as necessary to meet or exceed proper functioning condition.
- *Action WTR-3(I*)*: Any spring improvements and/or new water developments will undergo evaluation and an approval process that would include an appropriate level of environmental analysis (NEPA) by BLM.
- *Action WTR-4(I*)*: Provide water for livestock, wildlife, and administrative use from wells rather than from natural springs and/or surface waters where it is determined that these uses are detrimental to the spring and/or surface waters.
- *Action WTR-5(S)*: Continue to monitor and remove tamarisk, bull thistle, and other noxious weeds from wetland areas.
- *Action WTR-6(S)*: Use native plants in wetland areas to restore degraded springs or streams.

- *Action WTR-7(S)*: Inventory, characterize, and map all existing water wells within the CPNM
- *Action WTR-8(S)*: Establish a baseline database of existing water wells, groundwater level trends, and groundwater quality for the Carrizo Plain Groundwater Basin within the National Monument.
- *Action WTR-9(I)*: Determine if any existing wells in the CPNM are suitable for water level and water quality monitoring.
- *Action WTR-10(I*)*: Drill groundwater monitoring wells at selected locations within the Carrizo Plain Groundwater Basin in the CPNM, focusing in areas that may be potentially impacted by proposed and future offsite land uses.
- *Action WTR-11(S)*: Monitor the water levels and water quality in new monitoring wells and/or existing wells on a quarterly basis for first 2 years, and annually thereafter.
- *Action WTR-12(S)*: Coordinate with other public agencies such as the U.S. Geological Survey, California Department of Water Resources, and San Luis Obispo County on monitoring and research relative to groundwater in the CPNM.
- *Action WTR-13(S)*: Develop a hydrologic model of the CPNM groundwater system and interaction with surface waters, watershed, and Soda Lake.

II.B.9 Wild and Scenic Rivers

BLM is required to evaluate stream segments on public lands as potential additions to the National Wild and Scenic Rivers System during the RMP process under Section 5(d) of the *Wild and Scenic Rivers Act* of 1968 (Public Law 90-542).

The RMP team met in October, 2007, and identified/evaluated watersheds within the CPNM for eligibility under the *Wild and Scenic Rivers Act*.

II.B.9.1 Goal

Goal WSR-1(P): Meet the requirements of the Wild and Scenic Rivers Act to study stream segments for potential inclusion in the Wild and Scenic Rivers system.

II.B.9.2 Objective and Management Actions

Objective WSR-1(P): Evaluate and provide interim protection for all eligible and suitable wild and scenic river segments until Congress makes a final determination regarding their designation under the *Wild and Scenic Rivers Act*.

- *Action WSR-1(P)*: BLM would carry forward the non-eligible recommendation for Soda Lake from the Caliente RMP (1996).
- *Action WSR-2(P)*: Abbot Canyon, Wallace Creek, and the Cuyama River were found to be not eligible for designation under the *Wild and Scenic Rivers Act*.

Note: Soda Lake, Abbot Canyon, Wallace Creek, and the Cuyama River all have values that are explicitly protected as objects under the Monument Proclamation. Therefore, objectives and actions are included in other parts of this RMP to ensure that they are protected.

II.B.10 Geology and Paleontology

The geological structure, formation processes, and the fossil assemblages in the Monument have long been recognized as important features needing protection by the public, government agencies, universities, and the scientific community. The following laws and policies provide direction for planning and managing the Monument's paleontological and geologic resources.

Pursuant to the Monument Proclamation, geological resources in the CPNM are recognized as "World famous geologic processes that formed the San Andreas as a preserved natural landscape..... Protect significant fossil assemblages of scientific interest."

Procedural guidance, policy, management, and planning for paleontological resource management are provided in the *Paleontological Program Manual 8270 and Handbook H-8270-1*. To conduct paleontological research or mitigation for projects in the Monument, a permit is required through the BLM State Office and fieldwork authorizations would be issued from the Bakersfield Field Office.

43 CFR 8365 addresses the collection of invertebrate fossils and, by administrative extension, fossil plants.

43 CFR 8200 addresses procedures for the management of lands that have outstanding natural history values such as fossils that are of scientific interest.

18 United States Code Section 641 provides authority for addressing the unauthorized collection of fossils as a type of government property.

II.B.10.1 Goals

- *Goal GP-1(P)*: Identify, protect, and preserve paleontological values and unique geologic features and examples of geologic processes pursuant to the Monument Proclamation.
- *Goal GP-2(P)*: Enhance scientific, educational, and recreational opportunities pertinent to paleontological and geological resources.

II.B.10.2 Objectives and Management Actions

II.B.10.2.1 Protection and Preservation

Objective GP-1(P): Protect and preserve significant vertebrate or invertebrate fossils.

- *Action GP-1(S)*: Implement paleontological inventory to identify sensitive zones and localities of vertebrate and invertebrate fossils in the Monument.
- *Action GP-2(S)*: Prioritize protection of sensitive paleontological and geological formations through law enforcement patrol.

Objective GP-2(P): Protect geological landforms such as the San Andreas Fault, Soda Lake, and the clay dunes at Soda Lake.

- *Action GP-3(S)*: Identify baseline data and monitor sensitive areas to detect natural and human-caused disturbances such as erosion at Wallace Creek or unauthorized collection of fossils, and implement corrective action such as educational awareness and erosion control.

II.B.10.2.2 Public Education and Interpretation

Objective GP-3(P): Encourage educational interpretation and research project opportunities with the scientific community and educational partnerships.



Photo 5: Public Tour (BLM File)

- *Action GP-4(S):* Where resource integrity would not be compromised, interpret fossils, geological landforms, features, and formations as compatible with the associated recreation management zone.
- *Action GP-5(S):* Encourage valid research and volunteer partnership opportunities associated with the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and other areas of geological interest in the Monument.

Objective GP-5(I): Focus public education and interpretation of geological and paleontological resources at field locations.

- *Action GP-9(S):* Interpretative information pertinent to geologic and paleontological resources would be focused at existing and additional field locations in the Monument where compatible with specific recreation management zones and VRM class.
- *Action GP-10(S):* Continue existing guided public tours and self-guided geologic road tours and interpretive trail to San Andreas Fault/Wallace Creek and other points of geological interest in the Monument. Interpretive information would be provided at on-site locations, or adjacent to pedestrian trails and road locations.
- *Action GP-11(I*):* Assess the feasibility of expanding the Wallace Creek interpretive program by providing geological walk-through-time displays adjacent to the trail.
- *Action GP-12(S):* Maintain and enhance the Goodwin Education Center or some other public facility with displays pertinent to paleontological and geological formations. The center would continue to provide public displays and hands-on educational exhibits.

II.B.10.2.3 Paleontological Resource Scientific Research

Objective GP-4(P): Establish baseline inventory of paleontological resources in the Monument.

- *Action GP-6(S):* Encourage valid research and volunteer partnership opportunities to identify fossil localities, collect specimens, interpret finds, evaluate their significance, and preserve representative fossil formations and localities.

- *Action GP-7(S)*: Identify and compile existing geological and paleontological research maps and professional reports pertinent to the Monument. Maintain baseline data in hard copy and electronic (GIS) format.
- *Action GP-8(S)*: Create both detailed and planning overview geological maps of the Monument depicting Wallace Creek, Soda Lake, and other sites of geological and paleontological significance.

Objective GP-6(P): Pursue field research of paleontological resources using a combination of hand tools and mechanized equipment that would balance protection of resources with collection of scientific information.

- *Action GP-13(I*)*: Hand tools and mechanized equipment may be authorized for excavations where needed to assess and preserve significant fossils that may be lost to erosion or unauthorized collection. Exposed fossil formations or localities would be stabilized where feasible to deter further erosion or theft of specimens. Research methods would have to meet paleontological permit standards.
- *Action GP-13(I*)*: Conduct field research in a fashion that would be compatible with the appropriate VRM class and not compromise the overall physical integrity of the fossil bed or locality.
- *Action GP-14(I*)*: Recover fossils at risk of loss and place significant finds in a repository meeting federal standards (36 CFR 79). Selected specimens would be placed on exhibit in the Monument and other fossils may be used for public educational purposes such as hands-on interpretive uses.
- *Action GP-15(S)*: Pursue field research of paleontological resources through cooperative agreements and contracts or permits to identify fossil formations and localities, and assess condition of paleontological resources threatened by soil erosion or human-caused disturbances.
- *Action GP-16(S)*: Identify sensitive paleontological formations in the Monument and expand baseline inventory in GIS or hard copy format and maps.

II.B.10.2.4 San Andreas Fault/ Soda Lake/ Geological Formation Research

Objective GP-7(P): Pursue field research of significant geological resources using a combination of hand tools and mechanized equipment.

- *Action GP-17(S)*: Consider more intensive research for the advancement of public education and scientific understanding of significant geological resources in the Monument. A reasonable amount of ground disturbance would be allowed that would not compromise the physical integrity of the formation and would be compatible with the appropriate VRM class.
- *Action GP-18(I*)*: Continue formal field research pertinent to geological resources in areas of interest such as the San Andreas Fault, Soda Lake, sag ponds, clay dunes, and volcanic formations in the Monument.
- *Action GP-19(I*)*: Allow research data collection methods such as surface investigations, coring samples at Soda Lake, and geological, mineralogical, or seismic studies at the fault zone.
- *Action GP-20(S)*: Document findings from geological research in a professional report and provide to BLM and its partners. Sensitive or unique geological information identified through research would be archived in GIS or hard copy format for reference.

II.B.11 Cultural Resources

A broad range of federal laws, regulations, and program manuals guide BLM in the management of cultural resources and consultation with the California SHPO, and with federal tribal governments and other Native Americans. The following list identifies some of the primary guidance for developing cultural resource planning decisions:

- Monument Proclamation, "Protect historic/prehistoric structures and objects....Proper care and management of the rich human history....world class rock painting....historic ranches."
- The BLM Cultural Resources 8100 Manual series establishes BLM's policy for managing cultural resources including identifying and evaluating cultural resources, tribal consultation, planning, protecting cultural resources, permitting, preserving collections, and interpreting cultural resources for the public.
- Cultural resources under BLM jurisdiction are subject to the provisions of NHPA Sections 106 and 110. Section 106 and 110 work is streamlined or modified for program efficiency through the National Programmatic Agreement among BLM, the Advisory Council of Historic Preservation, and the National Conference of State Historic Preservation Officers (March 1997). The National Programmatic Agreement is augmented by the State Protocol Agreement among the California State Director of BLM, the California SHPO, and the Nevada SHPO (October 2007).
- 36 CFR 800 provides implementing regulation guidance for Section 106 compliance. Part 800.16y defines what constitutes a federal undertaking and the criteria for assessing and addressing effects on a historic property.
- The 36 CFR 60 regulations provide compliance procedures and evaluation criteria for determining the eligibility of a cultural resource property for inclusion on the National Register of Historic Places (NRHP).
- The *Archaeological Resources Protection Act* (ARPA) of 1979 (as amended) establishes definitions, permit requirements, and criminal and civil penalties related to cultural sites. Sensitive cultural resource records, site location information, and traditional cultural properties and values would be held confidential from the public as deemed appropriate to protect historic properties under Section 9(a) of ARPA. The act is implemented by uniform regulations and departmental regulations found in 43 CFR 7.
- The *American Indian Religious Freedom Act* of 1978 provides federal policy to protect and preserve for the American Indian the inherent right of freedom to believe, express, and exercise their traditional religions, including but not limited to access to religious sites, use and possession of sacred objects, and freedom to worship through ceremonies and traditional rites.
- Executive Order 13007, *Indian Sacred Sites* (1996), directs federal agencies to manage federal lands in a manner that accommodates American Indian religious practitioners' access to and ceremonial use of Indian sacred sites, and avoids adversely affecting the physical integrity of sacred sites, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions.
- *Native American Graves Protection and Repatriation Act* of 1990 (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) establishes rights of Indian tribes and Native Hawaiian organizations to claim ownership of certain cultural items, including human remains, funerary objects, sacred objects, and objects of cultural patrimony, held or controlled by Federal agencies and museums that receive Federal funds. It requires agencies and museums to identify holdings of such remains and objects and to work with appropriate Native Americans toward their repatriation. Permits for the excavation and/or removal of cultural items protected by the act require Native American consultation, as do

discoveries of cultural items made during land use activities. The Secretary of the Interior's implementing regulations are at 43 CFR Part 10.

II.B.11.1 Goals

- *Goal CUL-1(P)*: Identify, protect, and preserve significant prehistoric and historic resources.
- *Goal CUL-2(P)*: Provide opportunities for Native American traditional cultural practice and access.
- *Goal CUL-3(P)*: Enhance opportunities for research, public education, and awareness of the fragile nature of heritage resources.

II.B.11.2 Objectives, Management Actions, and Allowable Uses

II.B.11.2.1 General Cultural Resources Protection

Objective CUL-1(P): Protect and preserve significant cultural resources from natural and human-caused disturbances such as erosion and vandalism at archaeological sites.



Soda Lake - circa 1912

Photo 6: Soda Lake Mining Activities (BLM File)

- *Allowable Use CUL-1(P)*: Manage Painted Rock as a point of public interest to limit public use to a level that does not compromise its NRHP qualities or traditional use values.
- *Action CUL-1(I*)*: Repair, maintain, and realign the fences encircling the Rock Art Historic District in the vicinity of Painted Rock and Selby Rocks to enclose and protect all archaeological sites in this portion of the district from unauthorized off-highway vehicle (OHV) use and livestock grazing trespass. Remove fences that are in poor condition if they are no longer needed, subsequent to recordation and assessment pursuant to Section 106 of the NHPA. See Map 2-3, Painted Rock Exclusion Zone.
- *Allowable Use CUL-2(P)*: Photography for commercial purposes at CPNM rock art sites – prohibit still and video photography for commercial purposes of the pictograph images at Painted Rock and other rock art sites in the Monument. This limit on commercial photography is authorized under 43CFR 2920.
- *Allowable Use CUL-3(P)*: Research projects proposed by accredited scientific, academic, or research institutions or individuals involving the study and documentation of the pictographs and petroglyphs at Painted Rock and other rock art sites on the Monument employing photography will require a Cultural Resource Use Permit (pursuant to ARPA and FLPMA) and an approved BLM Fieldwork Authorization.

- *Allowable Use CUL-4(P)*: All cultural resource field investigations conducted on the Monument will require appropriate permitting as referenced above.
- *Action CUL-2(S)*: Monitor, identify, and record cultural resource sites threatened by human activity and natural forces such as graffiti, illegal digging, artifact collection, inadvertent rock art disturbance by human contact, water and wind erosion, bird excretion and dust accumulation on rock art paintings, and weather effects on historic buildings and structures. Implement corrective actions such as law enforcement patrol, public education, and stabilization.
- *Action CUL-3(I*)*: For rock art sites threatened by natural conditions and human-caused impacts, conduct assessment, conservation treatment, detailed documentation, or other preservation strategies, pursuant to federal regulations and BLM Cultural Manual 8120-8150.
- *Action CUL-4(I*)*: Assess impacts from livestock grazing to the Saucito Rocks, Sulphur Springs, and Abbott Canyon components of the Rock Art Historic District. If impacts are existing or could potentially occur, exclude livestock from all or parts of the pastures encircling the sites.
- *Action CUL-5(I*)*: Assess impacts from the administrative road accessing the Saucito Rocks, Sulphur Spring, and Abbott Canyon components of the Rock Art Historic District. Identify and assess impacts to any other NRHP properties located within or contiguous to existing public or administrative roads. Employ realignment, closure of road segments, road capping, or some other form of preservation.
- *Action CUL-6(S)*: To protect archaeological properties in the Rock Art Historic District from direct impacts from unauthorized OHV use or indirect effects from dust accumulating on rock art motifs, target law enforcement patrol to deter unauthorized OHV use and to enforce speed limit restrictions in the Monument. Signs prohibiting OHV use would be posted.
- *Action CUL-7(P)*: Any NRHP-eligible archaeological property at risk would be subject to emergency closure or access restrictions for site preservation, pursuant to federal regulations.
- *Action CUL-8(S)*: Revise or update sensitive cultural resource zones or fire maps as well as cultural baseline map.
- *Action CUL-9(P)*: NRHP-listed archaeological properties in the Rock Art Historic District and nominated eligible properties in the National Historic Landmark consist of 89 cultural properties allocated to the Conservation for Future Use category. Painted Rock is allocated to Traditional and Public Use categories. The historic Traver Ranch and KCL Ranch are allocated to the Public Use category. The historic El Saucito Ranch, Washburn Ranch, and Selby Cow Camp are allocated to the Public Use and Scientific Use categories.
- *Action CUL-10(P)*: Evaluate sites for National Register eligibility and assign the appropriate management use category for sites in the Monument not previously designated above (that is, scientific, conservation, traditional, public, experimental, or discharged from management), pursuant to BLM 8110 Manual, SHPO State Protocol Agreement, and other pertinent regulations. Cultural resources could be allocated to one or more use categories.
- *Action CUL-11(S)*: Develop and implement a cultural resource management plan for cultural resources on the CPNM. This plan will include specific strategies for survey, monitoring, rock art and prehistoric and historical archaeological site management. This plan will also include treatment plans for restoring or stabilizing NRHP-eligible and selected non-eligible historical sites such as ranch buildings, pursuant to BLM Manual 8100. This could also include the reconstruction of buildings or structures that are no longer extant. This portion of the plan shall also include identification of facilities that pose a hazard to the public and either raze facilities or secure them in a state of arrested decay. This cultural resource management plan will be completed in phases for each resource type.

Objective CUL-2(P): Maintain and enhance open dialogue with Native Americans to participate in planning and consultation processes.

- *Action CUL-12(S):* Develop procedural agreement with the Native Americans addressing items such as consultation procedures, *Native American Graves Protection and Repatriation Act* issues, tribal government-to-government face-to face meetings, monitoring, interpretive, and trust responsibilities.
- *Action CUL-13(S):* Continue to work with federal tribes, other Native Americans having ancestral ties to the Carrizo Plain, and the Native American Advisory Committee under the guidelines of the existing Carrizo Native American Advisory Committee Charter Agreement.

Objective CUL-3(P): Ensure opportunities for Native American traditional plant gathering, cultural activities, and ceremonial rites.

- *Action CUL-14(S):* Pursue development of a protocol agreement with the Native Americans to implement the statewide policy regarding traditional plant gathering and other traditional practices such as ceremonial rites and access.
- *Action CUL-15(S):* In implementing this agreement, consider opportunities to work with Native Americans to identify, protect, and implement active management efforts (such as prescribed burning) to improve vigor and distribution of native plants used in traditional practices such as basketweaving.
- *Action CUL-16(S):* As wildlife herds increase to sustainable levels, work with Native American groups and CDFG in an effort to allow for the use of native animals pursuant to state fish and game laws and regulations.

Objective CUL-4(I): Provide for the removal of invasive nonnative plants while retaining the integrity of historic property landscapes.

- *Action CUL-17(I*):* Where invasive nonnative plants such as horehound are found at a specific prehistoric site such as Painted Rock, consider the eradication of the nonnative plant and replacement with a native plant to restore the site's natural setting, while stabilizing the ground surface and protecting any surface artifacts from potential looting, pursuant to federal regulations and Native American consultation.
- *Action CUL-18(I*):* Where invasive nonnative plants such as tree of heaven are found on a historic property, eradicate the plant and replace with an appropriate native plant that would typically be found in the Monument such as the cottonwood tree or replace with acceptable non-invasive nonnative plant to preserve the historic landscape, pursuant to cultural regulations.

Objective CUL-5(P): Encourage partnerships, research, interpretation, and educational opportunities with the public, scientific, and educational communities, Native Americans, conservation groups, and other interested parties.

- *Action CUL-19(S):* The El Saucito Ranch interpretive and educational trail program would continue with restricted access, allowing only pedestrian guided tours.
- *Action CUL-20(S):* Implement intensive and mixed sample inventory strategies to establish a predictive model revealing the low, moderate, or high probability zones for prehistoric and historic resources in the CPNM.
- *Action CUL-21(S):* Compile and transcribe oral histories from willing ranchers, ethnic groups, Native Americans, and other parties having cultural ties to the CPNM.

- *Action CUL-22(S)*: Compile and archive for long-term preservation, historic documents and photographs associated with the CPNM for public education and interpretive uses pursuant to BLM Manual 8110 and 8170.
- *Action CUL-23(S)*: Pursue research questions pertinent to historic resources such as:
 - What economic and lifestyle strategies were employed by the inhabitants from the pioneer to the modern phases?
 - What important historic themes in the Monument help us better understand the history of the Carrizo Plain, such as dry-land farming, livestock operations, mining, transportation system, education, and social interaction; and how did this affect demographics and ethnic groups represented on the Plain?
 - How did agriculture in the Monument evolve, including dry-land farming and other farming practice such as Brumley's fruit orchard and Edgar's grape vineyard?
 - How did the introduction of mechanized farming and ranching machinery on the Carrizo Plain, circa 1912, affect the family economy and social interaction; large scale operations verses small family business; expansion of farmland; preferred market products and transportation; and abandonment of the family farm or ranch?
- *Action CUL-24(S)*: Pursue research questions pertinent to ethnographic and prehistoric resources such as:
 - What are the cultural affiliations and their demographics on the Carrizo Plain?
 - What adaptive strategies were employed by the indigenous people in their environment over time?
 - What effect did the Mission and Mexican influence have on the demographics of the native population on the Carrizo Plain?
 - What is a predictive model for the occurrence of archaeological site types and their distribution in the Monument? Were these sites occupied on a seasonal and/or long-term basis?
 - Was the Carrizo Plain a primary trade route to the Coast, Central Valley, and beyond, and what goods were exchanged?
 - Was the Pleistocene shoreline of Soda Lake occupied by the early cultures? If not, why?

Objective CUL-6(P): Place priority on acquisition of significant cultural resources in the Monument should non-federal land become available.

- *Action CUL-25(I*)*: Pursue acquisition or cooperative management partnership with the state property located atop Caliente Mountain Peak, including the Caliente Mountain WWII lookout tower for the primary purpose of preserving the wooden structure through stabilization or restoration.
- *Action CUL-26(I*)*: Pursue acquisition of NRHP-eligible cultural properties in the Monument on private land should the landowner be willing to transfer the parcel to federal ownership.

II.B.11.2.2 Painted Rock

Objective CUL-7(P): Protect Painted Rock while allowing guided groups and self-guided visitor access.

- *Allowable Use CUL-5(P)*: Painted Rock would be open to guided tours from March 1 through July 15 on a routine schedule with identified protective measures and conservation ethics while visiting the site.

- *Allowable Use CUL-6(P)*: A permit would be required for self-guided visitor access from July 16 to the end of February. Permits would include stipulations and conditions identifying protective measures and conservation ethics while visiting the site.
- *Action CUL-27(S)*: Monitor and conduct law enforcement patrol of self guided BLM issued permit program to ensure that visitors are complying with the stipulations/conditions that protect sensitive cultural resources. If monitoring and ranger patrol shows that the self guided permit program is not adequately protecting the resources, the program would be modified (for example, limit visitors or limit times or days of issuance) or discontinued. If the program were discontinued, access would be limited to guided groups only.
- *Action CUL-28(S)*: BLM, the CPNM Native American Advisory Committee, federal tribes, and other Native Americans with ancestral ties to the Carrizo Plain, in a collaborative effort, would develop permit administrative procedures, conditions, stipulations, and checks and balances to ensure permit compliance (for example, ranger patrol, electronic surveillance, monitoring, or other means). This would include any amendments to the permit or the permit process.
- *Allowable Use CUL-7(P)*: A Special Recreation Use Permit is required for groups of 20 or more individuals pursuant to 43 CFR 2930. Permits would include stipulations and conditions identifying protective measures and conservation ethics.
- *Allowable Use CUL-8(P)*: Develop a visitor allocation system to ensure that public visitation would not exceed 25 visitors (as a target) at a time in the rock alcove during guided group visitation or self-guided access.
- *Allowable Use CUL-9(P)*: The area would be closed from dusk to dawn year-round.
- *Allowable Use CUL-10(P)*: Coordinate with the Recreation program to establish a rule to prohibit campfires within the Painted Rock exclusion zone (see Map 2-3, Painted Rock Exclusion Zone) while still allowing for approved Native American ceremonial use of fire.
- *Allowable Use CUL-13(P)*: The Rock Art Historic District component from Painted Rock to Selby Rocks and the adjacent area would be closed to livestock grazing, horses, dogs, non-motorized bikes (excluding Painted Rock parking area), and cache-type activities, excluding the Selby Road and Caliente Mountain Road. The discharge of firearms would be prohibited for the entire exclusion area consisting of 1,204 acres. See Map 2-3, Painted Rock Exclusion Zone.
- *Allowable Use CUL-14(P)*: For preservation of Painted Rock, no climbing on the rock, no direct contact (touching) or defacement of rock art, and no collecting or displacing of artifacts, ecofacts, or features would be allowed without authorization from BLM. Cultural resource researchers could be excluded from some of these conditions if they secure a BLM cultural resource use permit and fieldwork authorization or other form of approval such as a cooperative agreement. Access to and atop Painted Rock by other researchers such as wildlife biologists could be authorized on case-by-case basis for valid research proposals. Such authorization would require close coordination with the agency archaeologist and Native Americans. All other requirements listed in the preceding management action would be required.
- *Allowable Use CUL-15(P)*: The road to the parking area and archaeological site would be subject to temporary or emergency closure without prior public notice for reasons such as muddy road conditions, during sensitive periods of bird nesting, and to protect resources and cultural values.
- *Action CUL-29(I*)*: Fences around Painted Rock would be maintained and realigned to encompass the National Register District component between Painted Rock and Selby Cow Camp. Fences fallen into a state of poor repair would be removed if no longer needed, subsequent to recordation and assessment in compliance with Section 106 of the NHPA.

- *Action CUL-30(S)*: Prioritize patrol, monitoring, and surveillance actions for protection of Painted Rock.
- *Allowable Use CUL-16(P)*: Native Americans would be allowed access to the site for traditional uses pursuant to the *American Indian Religious Freedom Act* and Executive Order 13007, *Indian Sacred Sites*, and through advance coordination with BLM.

II.B.11.2.3 At-Risk Archaeological Resources

Objective CUL-8(P): Restrict access and protect sites that are at high risk from human-caused impacts.

- *Allowable Use CUL-17(P)*: The public would be required to secure a permit from BLM prior to self-guided pedestrian access to archaeological site C06-1 located on the pyramid-shaped basalt hill on KCL Ranch. Rationale: The geological basalt hill formation, a remnant of volcanic activity, has been of interest to geologists, educational groups, and other interested parties for years. The integrity of the cultural property on the hill is at risk as a result of human-caused disturbance, whether it be purposeful or inadvertent.
- *Action CUL-31(P)*: Inform the public of permit requirements to access site C06-1. Permits would include stipulations and conditions identifying protective measures and conservation ethics while visiting the site.
- *Allowable Use CUL-18(P)*: A Special Recreation Use Permit is required for groups of 20 or more individuals to access site C06-1 pursuant to 43 CFR 2930. Permits for visiting the site would include stipulations and conditions identifying protective measures and conservation ethics while visiting the site.
- *Allowable Use CUL-19(P)*: Native Americans with ancestral ties to the Carrizo Plain would be allowed pedestrian access pursuant to federal regulations.
- *Allowable Use CUL-20(P)*: All public lands within ¼ mile of Sulphur Spring would remain closed to public access (for protection of archaeological resources) per Federal Register 97:27615, dated October 16, 1997.
- *Action CUL-32(P)*: Prioritize patrol and monitoring of sites C06-1 and CA-SLO-100 for protection and compliance. Take corrective action such as fencing or closing site C06-1 to public access if site is threatened by impact.

II.B.11.2.4 Rock Art Protection

Objective CUL-9(P): Enhance conservation efforts for long-term preservation of rock art sites affected by natural agents and inadvertent human impacts to preserve cultural values and provide public enrichment for future generations.

- *Action CUL-33(S)*: Develop a rock art preservation plan, as part of a cultural resource management plan, that would identify and assess the condition of rock art sites at risk of loss to natural agents and inadvertent human impacts. Implement appropriate protection, conservation, and treatment measures to preserve rock art being affected by natural deterioration such as wind and water erosion, rock exfoliation, dust accumulation, or bird excretions. Conservation of rock art would be subject to consultation with Native Americans having ancestral ties to the Carrizo Plain and the CPNM Native American Advisory Committee pursuant to federal regulations and the BLM/SHPO State Protocol Agreement.
- *Action CUL-34(I*)*: Reduce the rate of natural and human impacts to rock art by implementing measures such as dust abatement on roads and trails; installation of physical barriers, boardwalks, and

interpretive panels; or other preservation measures to manage public access to sites, such as maintaining a safe distance from rock art panels and motifs.

- *Action CUL-35(S)*: Prioritize law enforcement patrol and monitoring of all site components and document in written and visual media for management purposes.
- *Action CUL-36(S)*: Rock art condition assessments and cause of deterioration would be fully documented over time in written and visual media formats.
- *Action CUL-37(S)*: Implement detailed site recordation of archaeological features and rock art elements to preserve site information prior to potential loss of site constituents should conservation measures be unsuccessful or not implemented.
- *Action CUL-38(S)*: Provide interpretive and educational awareness to the public and Native Americans to preserve heritage resource values.

II.B.11.2.5 Public Education, Interpretation, and Archiving

Objective CUL-10(I): Focus cultural and natural history interpretive and education awareness information at on-site field locations or an appropriate viewing distance with less emphasis on multiple indoor public facilities.

- *Action CUL-39(P)*: Location and means of public education and interpretation at field locations and at indoor facilities would be compatible with the specific recreation management zone and VRM class.
- *Action CUL-40(P)*: Additional field locations of public interest would be selected for interpretive and educational uses pertinent to cultural and natural history values in the CPNM.
- *Action CUL-41(P)*: Cultural resource and natural history information would continue to be displayed via informational and interpretive signs and brochures at on-site locations, roadsides, or pedestrian trails at areas such as Painted Rock, Wallace Creek, and El Saucito and Selby ranches.
- *Action CUL-42(P)*: Public education and interpretative information about the cultural and natural history values in the Monument would be maintained and enhanced at the Goodwin Education Center or some other public facility that would provide displays and learning opportunities for the public.
- *Action CUL-43(S)*: As part of a comprehensive interpretive plan, analyze the feasibility of developing a new or expanded public interpretive and educational center in the Monument that would accommodate groups and researchers. Considerations would include expanding the floor space at the Goodwin Education Center, reconstruction of the 1890s barn at El Saucito Ranch, or construction at some other viable location in the Monument. Public use, scientific research, interpretive and educational programs, and archival storage needs would be considered in the analysis.

II.B.11.2.6 Ranching/Farming Machinery and Equipment

Objective CUL-11(P): Retain selected representative examples of historic machinery and equipment *in situ* in the Monument as part of the historic landscape.

- *Action CUL-44(I*)*: Selected historic machinery and equipment would remain in place in the field for public visitation and educational awareness of past land uses with less emphasis placed on relocating additional items to centralized locations such as the Traver Ranch and the Goodwin Education Center. Selection criteria for leaving objects *in situ* will be based upon the degree to which the object contributes to both the historical context of the setting, its interpretive value within that context, and issues of public safety.

- *Action CUL-45(I*)*: Provide educational information to the public about the historic machinery and equipment through field-specific interpretive signs, kiosks, or brochures as compatible with the recreation management zone objectives.
- *Action CUL-46(I*)*: Assess the condition and safety of leaving machinery and equipment scattered across the Monument. If items pose a safety hazard, such items would be slated for removal from the Monument. Removing or relocating items would be documented and assessed *in situ* prior to removal pursuant to compliance with Section 106 of the NHPA.



Photo 7: Historic Water Wagon (BLM File)

II.B.11.2.7 Historic Ranching and Farming Buildings and Structures

Objective CUL-12(I): Recognize the importance of preserving historic ranching and farming buildings and structures in the Monument.

- *Action CUL-47(I*)*: Place emphasis on the preservation of historic resources for public enrichment and only target removal for sites that pose a public safety hazard and are ineligible for the NRHP, pursuant to Section 106 and 110 of the NHPA (36 CFR 800) or the BLM/SHPO State Protocol Agreement.
- *Action CUL-48(I*)*: Restore, rehabilitate, and stabilize historic ranching and farming buildings and structures that are eligible for the NRHP. Reconstruction of structures may occur if these buildings are no longer extant but were once within the boundary of a Historic District. Pursuant to the State Protocol or 36CFR 68. Provide interpretive information about historic facilities to the public at selected NRHP sites.
- *Action CUL-49(I*)*: Historic buildings or structures ineligible for inclusion on the NRHP may be interpreted but would be razed or removed if compromised to the point that physical integrity no longer exists and the facility poses a safety hazard. Buildings such as the Traver Ranch may be saved from demolition and stabilized for its values associated with bird and bat habitat and dry-land farming interpretive uses.
- *Action CUL-50(I*)*: Emphasize restoring, rehabilitating, stabilizing, or reconstructing sites such as El Saucito, Washburn, and Selby ranches. For public enrichment, provide educational information such as interpretive signs, kiosks, and brochures pertinent to these ranches and other selected facilities.

II.B.12 Visual Resources

The vast open vistas and stark landscapes of the CPNM are primary attributes that the public is concerned with protecting as reflected in the scoping comments. Public lands within the National Monument have been inventoried using BLM's VRM classification system. Through the RMP process, BLM assigns



Photo 8: Fall on the Carrizo (BLM File)

VRM management classes to all public lands in the planning area. Each class allows for landscape changes from management activities and use authorizations that contrast at different levels with the existing characteristic landscapes. In all situations, actions are taken to minimize visual contrasts through careful project design.

II.B.12.1 VRM Class Definitions

Class I: The objective of this class is to preserve the existing character of the landscape. This class allows for natural ecological changes and only very limited management activities and uses. Any contrasts with the natural landscape must be minimal and not attract attention. This class is typically limited to designated wilderness, WSAs, or wild and scenic river segments with a “Wild” classification.

Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities and uses can be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements

of form, line, color, and texture in the predominant natural features of the characteristic landscape.

Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape can be moderate. Management activities and uses may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements of the predominant natural features of the landscape.

Class IV: The objective of this class is to allow for management activities and uses requiring major modifications to the natural landscape. The level of change to the characteristic landscape can be high. Management activities and uses may dominate the view and be a major focus of viewer attention. However, every attempt should be made to mitigate the impacts of activities through careful location and repeating the visual elements of the landscape.

Note: VRM zone boundaries correspond to recreation management zones. See Map 2-4, Recreation Management Zones and Route Designations.

II.B.12.2 Goal

Goal VRM-1(P): Protect and restore the unique scenic quality of the CPNM landscape.

II.B.12.3 Objectives and Management Actions

Objective VRM-1(P): Conduct management activities and complete developments in a manner that is sensitive to the visual qualities of the area and conforms to VRM Class objectives.

- *Action VRM-1(I):* Complete visual contrast ratings for all proposed surface or visually impacting projects to ensure they meet VRM class objectives.
- *Action VRM-2(I*):* Complete visual contrast ratings for existing roads and facilities and identify opportunities to reduce existing visual impacts through modifications such as painting water tanks, or removing unneeded facilities.
- *Action VRM-3(I*):* Complete an inventory of existing and potential key scenic vista points along roads and trail corridors and identify opportunities to develop and improve these locations as overlooks and interpretive sites.

Objective VRM-2(P): Minimize light pollution to retain the area's night sky qualities.

- *Action VRM-4(I):* Limit exterior lighting of BLM administrative facilities to the minimum necessary for safety and security. Use lighting types and shields that minimize light pollution.
- *Action VRM-5(S):* Work with adjoining communities (California Valley) to minimize light sources that impact the Monument.

Objective VRM-3(P): Manage the 62,455-acre Primitive zone as VRM Class I to protect wilderness characteristics.

- *Action VRM-5(I):* Conduct visual contrast ratings and ensure that all projects meet VRM Class I requirements.

Objective VRM-4(P): Manage the 165,180-acre Backcountry zone as VRM Class II.

- *Action VRM-6(I):* Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class II objectives.
- *Action VRM-7(I*):* Encourage retrofitting of existing facilities to comply with VRM Class II objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.

Objective VRM-5(P): Manage the 19,181-acre Frontcountry zone as VRM Class III.

- *Action VRM-8(I):* Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class III objectives.
- *Action VRM-9(I*):* Encourage retrofitting of existing facilities to comply with VRM Class III objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.



Photo 9: Caliente Mountain WSA (BLM File)

II.B.13 Wilderness Study Areas and Other Lands with Wilderness Characteristics

Management of lands with wilderness characteristics is part of BLM's multiple use mandate. Lands within the CPNM were inventoried in 2002 in accordance with BLM Handbook 6310-1 *Wilderness Inventory and Study Procedures*. Six distinct areas were inventoried for wilderness characteristics such as naturalness, opportunities for solitude, primitive and unconfined recreation, and other associated qualities.

During the current planning

effort, the 2002 inventory was reviewed and updated. In addition to these inventoried areas, the 17,984-acre Caliente Mountain WSA (CA-010-042) would not be affected by this RMP and would continue to be managed under BLM's *Interim Management Policy for Lands under Wilderness Review* (BLM 1995). Comments on the Draft RMP indicated that the valley floor landscapes of the Carrizo were poorly represented in the wilderness system and should be considered for management for wilderness character. This prompted BLM to reconsider and further update the wilderness inventory for this plan. As a result of this reconsideration and an inventory update, an additional 13,319 acres will be managed for wilderness characteristics under the Approved RMP – 7,921 acres that were in the original inventory for the draft, and 5,398 acres to the west of Soda Lake Road that were added after the updated inventory for the proposed RMP.

II.B.13.1 Goal

Goal WLD-1(P): Manage the Caliente Mountain WSA to preserve its wilderness qualities.

II.B.13.2 Objectives and Management Actions

Objective WLD-1(P): Manage the Caliente Mountain WSA so as not to impair the area's suitability for wilderness designation.

- *Action WLD-1(P):* All BLM initiated or authorized actions in the Caliente Mountain WSA will follow BLM's *Interim Management Policy for Lands under Wilderness Review* (BLM 1995).
- *Action WLD-2(P):* If released from further consideration by Congress for wilderness designation, the Caliente Mountain WSA would continue to be managed to protect wilderness character under the guidance of this RMP, unless the Congressional release language explicitly states otherwise.

Objective WLD-2(P): Manage the Caliente Mountain WSA (17,984 acres), Caliente Mountain adjoining lands (18,357 acres), the Temblor unit (12,795 acres), and Soda Lake units (13,319 acres) for wilderness

characteristics (approximately 62,455 acres total) so as not to impair their natural character. (See Map 2-5, Lands Managed for Wilderness Characteristics.)

- *Action WLD-3(P)*: All activities in areas managed for wilderness characteristics will follow the guidelines contained in Attachment 6, Management of Lands with Wilderness Characteristics.
- *Action WLD-4(I*)*: Conduct active restoration activities to remove unnatural features
- *Action WLD-5(I)*: Routes located within areas to be managed for wilderness characteristics will be used for administrative purposes only when non-motorized access is not feasible for specific projects (such as repairs that require heavy tools and materials). A minimum requirements analysis will be used to determine if use of mechanized equipment is appropriate. Closed routes will be rehabilitated or converted into non-mechanized trails.

II.B.13.3 Allowable Use

Allowable Use WLD-1(P): Appropriate public use would include non-mechanized activities such hiking, equestrian use, hunting, and dispersed camping.

II.B.14 Areas of Critical Environmental Concern

FLPMA requires BLM to identify lands with significant and sensitive resource values for protective management as ACECs. Prior to designation as a National Monument, the Carrizo Plain was designated as an ACEC in the Caliente RMP (1996). The Presidential Proclamation identifies and requires protection of the same values that were identified under the ACEC designation. Therefore, the ACEC designation is now considered to be duplicative and no longer necessary for lands within the boundary of the CPNM. Lands outside the CPNM boundary are outside the scope of this plan and will be assessed in the Bakersfield RMP regarding continued management as an ACEC.

Action ACEC-1(P): The Carrizo ACEC designation would be dropped for all lands within the National Monument boundary.

II.B.15 Livestock Grazing

This section describes where livestock grazing would be permitted within the Monument. In this document, livestock are defined as a species of domestic livestock including cattle, sheep, horses, burros, and goats.

BLM land use plans must identify which lands will be available or not available for livestock grazing (see allowable uses). In this RMP, lands are further divided into two sub-categories: those lands where livestock use is allowed to utilize available forage, and those lands where livestock are allowed only as a vegetation management tool to meet other land use plan objectives.

RMPs must also identify area-wide criteria or standards to achieve desired outcomes (see the goals and objectives, below). These standards were developed to ensure that management actions fulfill the purpose of the Proclamation. Changes to the land use allocation or the area-wide standards require amending the RMP.

This section of the plan also includes implementation-level actions that identify allotment-specific grazing management practices or livestock management guidelines, as well as constraints and needs related to other resources (see the management actions, below). These livestock management guidelines have been developed to achieve the plan objectives. Changes to these livestock management guidelines require

documentation of NEPA compliance and the application of the administrative grazing decision process defined in the regulations.

In areas designated as “available for livestock grazing,” federal grazing regulations (43 CFR 4100) provide uniform guidance for administering grazing on the public lands administered by BLM. The authority for implementing these regulations is mainly from the *Taylor Grazing Act* of June 28, 1934 as amended (43 USC 315, 315a- through 315r and FLPMA as amended by the *Public Rangelands Improvement Act* of 1978 (43 USC 1901 et seq.). Additionally, the Monument Proclamation states that “Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.”

Livestock grazing within the Monument is currently managed under two separate types of authorizations utilizing different sub parts of the federal grazing regulations (43 CFR 4100). Approximately 55,900 acres are available under Section 15 livestock grazing leases (Section 15 of the *Taylor Grazing Act*), principally in the Temblor and Caliente Mountain Ranges, where livestock use is allowed to utilize available forage. For clarification in this document, these grazing leases may be referred to as “Section 15” grazing leases. Grazing primarily on the valley floor (approximately 114,200 acres), where livestock are allowed only as a vegetation management tool to meet objectives other than the production of livestock forage, is currently authorized under authorizations referred to as “free use” grazing permits (authorized in 43 CFR 4130.5(b)). Livestock grazing in this vegetation management area could also be authorized through other mechanisms such as stewardship contracts. Grazing permits or leases authorize grazing use on specific management units, which are referred to as grazing “allotments”. These allotments are depicted on Map 3-12, Grazing Allotments. See Section III.N Livestock Grazing in Chapter III for further discussion of grazing authorizations.

II.B.15.1 Goal

Goal GRZ-1(P): Manage all livestock grazing (either as an allowable use, such as a Section 15 grazing lease, which utilizes livestock forage, or as a vegetation management tool, such as a free use grazing permit, which meets objectives other than the production of livestock forage) in a manner that protects the objects of the Proclamation.

II.B.15.2 Objectives and Management Actions

Objective GRZ-1(P): Manage livestock grazing to meet or exceed the Secretary-approved Central California Standards for Rangeland Health.

- *Action GRZ-1(S):* Assess all grazing allotments to determine if they are meeting the Standards for Rangeland Health.
 - Adjust livestock grazing authorizations in response to assessment determinations if not meeting Standards for Rangeland Health and livestock are determined to be the cause.
- *Action GRZ-2(I):* Apply the relevant Secretary-approved Central California Rangeland Health Guidelines for Grazing Management as implementation is described in the ROD of 1999 to grazing authorizations on all areas.

Objective GRZ-2(P): Manage livestock grazing to meet, and to not be in conflict with, the management objectives for all other resources and programs in the Monument.

- *Action GRZ-3(S):* Determine resource impacts from livestock grazing (negative or positive) through monitoring and/or scientific study, including within Section 15 grazing allotments, to help inform

future decisions on land use designations and to assess if livestock grazing is meeting other program objectives including those biological objectives identified in the Conservation Target Table (Attachment 5). Monitoring may be broad-scale or species-specific. Scientific studies will be developed with the managing partners and input from the scientific community and other technical experts on the design, implementation, data analysis, and summary of the results. In accordance with adaptive management principles and applicable regulations, the results would be used to take action (for example, continue, modify, or eliminate grazing authorizations in these areas).

- Adjust livestock grazing authorizations as necessary in response to monitoring or scientific study determinations if they are conflicting with other resources or program objectives.
- *Action GRZ-4(S)*: Monitor compliance with relevant grazing management guidelines.
 - Adjust livestock grazing authorizations as necessary in response to compliance monitoring.
- *Action GRZ-5(I*)*: Move the boundary fence to the official Monument boundary when resource benefits outweigh resource damage associated with fence construction or removal.

Objective GRZ-3(P): Continue existing livestock authorizations as required by law, regulation, and policy, but strive to utilize livestock grazing in the Monument only as a vegetation management tool, which meets objectives other than the production of livestock forage, as any voluntary relinquishments are offered.

- *Allowable Use GRZ-1(P)*: Allocate 55,900 acres as "available for livestock grazing" (see Map 2-6, Livestock Grazing Allocations) pending any future voluntary relinquishments as described below.
- *Allowable Use GRZ-2(P)*: Allocate 117,500 acres as "available for livestock grazing, but only for the purpose of vegetation management" (see Map 2-6).
- *Allowable Use GRZ-3(P)*: Allocate 33,100 acres as "unavailable for any livestock grazing" (see Map 2-6).
- *Allowable Use GRZ-4(P)*: Upon receiving any request for voluntary relinquishment of grazing permitted use from a Section 15 lease, the Authorized Officer will re-evaluate whether livestock grazing is in the best interest of achieving the land use plan goals. All or part of the relinquished permitted use will be re-allocated as "available for livestock grazing, but only for the purpose of vegetation management" and made available to qualified applicants. Should the Authorized Officer examine and document that continued livestock use of all or part of that forage allocation would not be compatible with achieving RMP management goals and objectives, that forage allocation will be re-allocated as "unavailable for any livestock grazing."
- *Allowable Use GRZ-5(P)*: Allocate any newly acquired lands as either "available for livestock grazing," "available for livestock grazing, but only for the purpose of vegetation management," or "unavailable for any livestock grazing" based on the purpose for which the lands were acquired, which allocation is in the best interest of achieving the land use plan goals, and considering the allocation of the existing lands within the surrounding livestock management unit. New or modified fencing may be employed to implement the new allocation if it is in conflict with the allocation for the rest of the pasture.
- *Action GRZ-6(I*)*: Authorize livestock grazing according to the regulations and grazing land use allocation, at levels up to those shown on the Grazing Implementation Table.
- *Action GRZ-7(I)*: Apply the relevant Grazing Management Guidelines for the Carrizo Plain National Monument (see the Conservation Target Table, Attachment 5) to all grazing authorizations.

- *Action GRZ-8(1*)*: Create, modify, maintain, or remove livestock management facilities to support livestock grazing as a use or as a management tool, or to meet other resource objectives, such as the protection of NRHP properties, riparian areas, sensitive plant populations, visual resources, the ingress and egress of wildlife, noxious weeds control, and the resolution of Monument boundary issues.

II.B.16 Recreation and Interpretation

The CPNM is a destination for a relatively small number of visitors annually, considering its proximity to southern and central California population centers. The majority of visitors come to directly experience the stark natural beauty and cultural significance unique to this landscape as opposed to the pursuit of leisure activities in a traditional vacation setting such as the mountains or the beach.

The Monument provides numerous opportunities and settings for the visitor to learn about and experience the area's unique natural features. Existing recreation facilities consist of mainly unpaved roads, a small visitor center, interpretive overlooks, and campgrounds with limited amenities. These support facilities are adequate for current use levels, and are in keeping with the management vision to keep the area rustic and natural. However, recreational and educational uses by special groups, academia, and the general public are expected to increase due to the rising awareness of the value of the Monument. Interpretive opportunities focus on the objects of the Monument Proclamation, which include world-class biological, cultural, and geologic resources. Protection and interpretation of these features would be a primary focus of future recreational development. Proposed improvements would retain a low level of development with "rustic" character. For the purposes of this section, "rustic" means small in scale, non-intrusive on the landscape, and providing primarily for visitor appreciation, safety, and protection of resources vs. comfort and convenience. The overall recreation management focus would be to provide settings and management that allows visitors to explore and experience the area on its own terms.

As part of the land use planning process, BLM lands having distinct primary recreation-tourism markets are identified. These areas are identified as special recreation management areas (SRMAs). Each SRMA has a distinct, primary recreation-tourism market as well as a corresponding and distinguishing recreation management strategy. The CPNM represents a distinct destination with a specific and singular management niche. Therefore, the entire area would be identified as one SRMA in this RMP.

II.B.16.1 Use of Recreation Management Zones

Discrete recreation management zone boundaries are defined through the RMP. Each zone has four defining characteristics:

- To serve a different recreation niche within the primary recreation market;
- To produce a different set of recreation opportunities and facilitates the attainment of different experience and benefit outcomes (to individuals, households and communities, economies, and the environment);
- To provide distinctive recreation settings; and
- To provide distinct management actions to meet the targeted primary recreation opportunities.

Under the RMP, management decisions are organized by recreation management zones. The zones describe the physical and social setting components the visitor will encounter when visiting these specific areas, as well as the level of management and improvements that will be provided. Each zone would highlight a different recreational experience. All lands within the CPNM are designated with a recreation management zone. These zones are titled as the Primitive, Backcountry, and Frontcountry zones.

Table II.B.16-1. Recreation Management Zones

Frontcountry	Backcountry	Primitive
Management Objective		
Manage this zone to provide opportunities for visitors to engage in the targeted activities in a short time frame; for primarily day-use and to gain knowledge of surrounding cultural and natural resources of the CPNM through interpretation and self-discovery. Motorized access will be limited to designated roads to protect the sensitive natural and cultural resources contained in this zone. Minimal developments and considerable protection measures will be set to retain and enhance the objects of the Proclamation.	Manage to provide opportunities for visitors to engage in a remote isolated recreation experience. Manage this zone to provide opportunities for visitors who use the area to engage in sustainable, access for primitive day-use and camping opportunities to gain appreciation of the natural setting of the CPNM self-discovery, and OHV touring on designated routes.	Manage this zone to provide opportunities for visitors to find solitude, engage in unconfined recreation, and experience personal challenge and reflection. Preserve the primitive opportunities and wilderness characteristics in this zone.
Recreation Opportunity		
• Camping • Cultural/historical sightseeing • Wildlife viewing • Picnicking • Auto touring • Wilderness access • Photography • Hiking • Equestrian activities • Biking	• Dispersed vehicle camping • Hiking • OHV touring • Cultural/historical sightseeing • Picnicking • 4-wheel-drive touring • Wilderness access • Photography • Wildlife viewing • Equestrian activities • Biking • Hunting	• Hiking • Backpacking • Equestrian activities • Primitive dispersed camping • Wildlife watching • Hunting
Experience		
• Enjoying easy access to natural landscapes • Enjoying unguided and guided exploration • Savoring the total sensory experience of a natural landscape	• Developing skills and abilities • Testing personal endurance • Savoring the total sensory experience of a natural landscape • Escaping everyday responsibilities for awhile	• Gaining a greater sense of self-confidence • Testing personal endurance • Savoring the total sensory experience (sight sound, and smell) of a natural landscape • Enjoying risk-taking adventure • Feeling good about solitude, being isolated and independent • Enjoying an escape from crowds of people • Nurturing personal spiritual values and growth

Frontcountry	Backcountry	Primitive
Benefits		
Personal: • Sense of wellness • Improved physical fitness and health maintenance • Greater respect for shared cultural heritage • Closer relationship with the natural world • Enhanced sense of personal freedom • Improved capacity for outdoor physical activity Community/Social: • Feeling that this community is a special place to live • Greater community involvement in recreation and other land use decisions • Greater awareness of and appreciation for our cultural heritage. • More well-rounded childhood development Environmental: • Greater community ownership and stewardship of recreation, and natural resources • Greater retention of distinctive natural landscape features • Reduced negative human impacts • Increase awareness and protection of natural landscapes • Reduced looting of historic and prehistoric sites • Sustainability of community's cultural heritage • Greater protection of wildlife, and plant habitat from development, and public land use impacts • Conservation of entire sustainable ecosystems • Reduced wildlife disturbance from recreation facility development Economic: • Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits • Increased local tourism revenue	Personal: • Greater self-reliance • Improved skills for outdoor enjoyment • Closer relationship with the natural world • Greater freedom from urban living Community/Social: • Feeling that this community is a special place to live • Greater community involvement in recreation and other land use decisions • More well-rounded childhood development Environmental: • Greater community ownership and stewardship of recreation, and natural resources • Greater retention of distinctive natural landscape features • Reduced negative human impacts • Increase awareness and protection of natural landscapes • Reduced looting of historic and prehistoric sites • Sustainability of community's cultural heritage • Greater protection of wildlife, and plant habitat from development, and public land use impacts • Conservation of entire sustainable ecosystems • Reduced wildlife disturbance from recreation facility development Economic: • Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits • Increased local tourism revenue	Personal: • Greater self-reliance • A closer relationship with the natural world • Improved skills for outdoor enjoyment • Enhanced sense of personal freedom • Greater freedom from urban living Community/Social: • Feeling that this community is a special place to live • Greater community involvement in recreation and other land use decisions • More well-rounded childhood development Environmental: • Greater community ownership and stewardship of recreation, and natural resources • Greater retention of distinctive natural landscape features • Reduced negative human impacts • Increase awareness and protection of natural landscapes • Reduced looting of historic and prehistoric sites • Sustainability of community's cultural heritage • Greater protection of wildlife, and plant habitat from development, and public land use impacts • Conservation of entire sustainable ecosystems • Reduced wildlife disturbance from recreation facility development Economic: • Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits • Increased local tourism revenue

Frontcountry	Backcountry	Primitive
<i>Proposed Management</i>		
• Opportunities for visitors to experience a wildland setting in close proximity to their home for a wide of range environmentally sound, motorized and non-motorized, recreational activities • Greater potential for interpretive developments and signing.	• Minimal improvements to achieve targeted benefits, realize potential for solitude, unconfined primitive activities; • Increased effort to manage unauthorized motor vehicle use. • Increased effort to promote authorized motorized and mechanized uses	• BLM will manage this zone to protect wilderness characteristics and provide the targeted benefits and outcomes.

Note that recreation management zones also provide a framework for the Wilderness, Visual Resources, and Travel Management sections of this document, and are referenced in these respective sections.

II.B.16.1.1 Primitive Zone Description

The Primitive zone is essentially roadless and a primary management goal would be focused on recognizing and managing a unique and primitive undeveloped area for its “wilderness character”. This environmental setting would offer visitors the greatest opportunity for solitude, challenge, and self-sufficiency. Management activities here would be to maintain and restore the area to a natural functioning ecosystem with minimal evidence of human intrusions. Within this zone, BLM would achieve important resource and visitor management objectives using hand tools, except in emergency situations or where motorized equipment is determined to be the minimum necessary tool. Appropriate public use would include non-motorized/non-mechanized activities with few recreational facilities, such as trails and signing for resource protection or visitor safety.

II.B.16.1.2 Backcountry Zone Description

The Backcountry zone would represent a broad mix of uses and management. Primary recreational activities in the Backcountry would include hunting, and motorized and non-motorized exploration. Dispersed camping will also be allowed. Roads and trails with natural surfaces would be the primary recreational facilities provided. Despite the presence of roads in this zone, many parts of the Backcountry zone would remain remote and difficult to access. The Backcountry zone would present ample opportunities to explore the Monument “off the beaten path.”

II.B.16.1.3 Frontcountry Zone Description

Most of the CPNM’s existing developed recreation sites are included within this zone and additional visitor facilities would be focused here. Primary management goals would focus on providing visitor access to developed recreation and interpretive sites. Appropriate facilities within this zone could include interpretive overlooks, developed campgrounds, a visitor/educational center, and trailheads. The Frontcountry zone would offer readily available services to casual visitors, where they can learn about the primitive character and significant resource values of the Monument without venturing into more remote locations that typify the other zones and require a higher level of preparation.

II.B.16.2 Goals

- *Goal REC-1(P)*: Provide recreation opportunities and interpretative programs that enhance the public's appreciation of the objects of the Monument Proclamation and other Monument resources.
- *Goal REC-2(P)*: Manage Monument lands to provide quality recreation while protecting natural and cultural resources, promoting safety and minimizing conflicts between users and wildlife.
- *Goal REC-3(P)*: Identify specific management zones that will each offer distinct types of recreation settings and opportunities to Monument visitors.

II.B.16.3 Primitive Zone Objectives, Management Actions, and Allowable Use

Objectives

- *Objective REC-1(P)*: Maintain a natural landscape, with few developments, where the forces of nature predominate and the sights and sounds of human influence are minimized. Management would be kept to a minimum to provide for visitor safety or resource protection. Visitor access would be cross-country or on non-mechanized trails.
- *Objective REC-2(P)*: Provide opportunities and benefits that allow freedom of access, solitude, and primitive non-mechanized recreation.
- *Objective REC-3(P)*: Visitors would be expected to practice a level of personal responsibility and self-sufficiency that is compatible with a self-directed, primitive experience.
- *Objective REC-4(P)*: The majority of management actions would occur outside of the Primitive zone so that visitors can experience freedom to choose travel and camping locations once they enter the zone. Management actions would prepare visitors to enter and use the Primitive zone safely and with minimal impacts to resources and other visitors. Management presence on-site would be subtle, in the form of rustic signs and non-mechanized trails, and with relatively low levels of direct visitor contact. Motorized roads within this zone would be either converted to trails or closed to public use.
- *Objective REC-21(P)*: Manage the existing 17,984-acre Caliente Mountain WSA plus 44,471 additional acres for wilderness characteristics within the Primitive zone. (See Map 2-4.)

Management Actions

- *Action REC-20(I*)*: Facilities determined necessary for resource protection and visitor safety may be provided. Typical facilities within the zone may include limited trail signing, trails, and horse hitching rails.
- *Action REC-21(I)*: Interpretive information for overlooks and other features would not be provided within this zone, and users would be expected to practice a level of self-sufficiency commensurate with wilderness access.
- *Action REC-22(I)*: Provide minimal signing within the interior of this zone only when needed for resource protection or visitor safety. Emphasis would be placed on off-site information.

Allowable Use

- *Allowable Use REC-4(P)*: A variety of non-mechanized recreational activities such as hiking, equestrian use, camping, wildlife viewing, nature photography, and other activities consistent with the goal of providing a wilderness experience would be allowed.

II.B.16.4 Backcountry Zone Objectives, Management Actions, and Allowable Uses

Objectives

Objective REC-5(P): Maintain the existing, predominantly natural landscape with visitor access provided through a network of unpaved roads and trails. Provide rustic day-use facilities, such as trailheads and interpretive or informational signing and associated parking, to orient the visitor with directional, interpretive, and regulatory information necessary to enhance their recreational experiences and protect important natural and cultural resources in the area. Dispersed camping will be allowed.

Objective REC-6(P): Provide opportunities for exploration of remote areas and allow for activities (mechanized and motorized on-road travel) not available within the Primitive zone. The Backcountry zone would also provide visitors with access points to the Primitive zone.

Objective REC-7(P): Visitors would be expected to practice a level of personal responsibility in following management guidelines and regulations to protect the natural and cultural resources in the area and the recreational facilities, and to respect the rights of other users.

Objective REC-8(P): Management activities within the Backcountry zone could occur through on-site informational and interpretive signing and visitor contacts as well as off-site through information and contacts provided within the Frontcountry zone. This would provide visitors with the opportunity to experience a mixture of personal freedom as well as feel a sense of security. Information would focus on informing visitors of recreational opportunities, safety concerns, and regulations designed to protect the natural and cultural resources in the area. Management presence on-site would continue to be more apparent than in the Primitive zone, with low to moderate levels of direct visitor contact.

Objective REC-22(P): Manage 165,180 acres as Backcountry (see Map 2-4).

Management Actions

- *Action REC-23(I):* Provide amenities at designated dispersed camping areas for resource protection and to encourage use in areas that are already impacted. Facilities would retain a rustic character.
- *Action REC-24(I):* Provide rustic informational signage on roads, trails, at trailheads, and at other facilities.
- *Action REC-25(I*):* Minor overlooks would be limited to pull-outs or small areas with few amenities. Most interpretive information will be obtained by the visitor in facilities located in the Frontcountry zone.

Allowable Uses

- *Allowable Use REC-5(P):* A variety of non-motorized and motorized recreational activities such as vehicle camping, driving for pleasure, hiking, equestrian use, mountain biking, hunting, nature study, wildlife and wildflower viewing, nature photography, and other uses compatible with goals for the Backcountry zone would be allowed.
- *Allowable Use REC-6(P):* Low-impact, non-motorized competitive activities and events that are consistent with the Monument Proclamation and cultural and biological objectives may be authorized. Require support facilities such as parking and concessions to be located at existing or approved BLM sites, or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species.



Photo 10: Interpretive Tour (BLM File)

II.B.16.5 Frontcountry Zone Objectives, Management Actions, and Allowable Uses

Objectives

Objective REC-9(P): The Frontcountry zone would have the majority of facilities on the CPNM. This zone would include the Goodwin Education Center, all of the major interpretive sites, both campgrounds, all administrative sites, Simmler Road, and parts of Soda Lake and Elkhorn Roads. This

area would include the greatest concentration of interpretation, signage, and kiosks and represents the highest level of development relative to the other zones.

Objective REC-10(P): The Frontcountry zone would give the visitor the opportunity to learn about the values and features of the CPNM in a relatively short time frame while having access to the greatest level of safety and comfort. The majority of the visitors would access the Monument and spend time in the Frontcountry zone, so encounters with other visitors would be anticipated.

Objective REC-11(P): Management presence on-site would be more apparent than in both the Primitive and Backcountry zones with higher levels of direct visitor contacts including some opportunities for guided tours and other interpretive programs.

Objective REC-23(P): Manage 19,181 acres as Frontcountry. (See Map 2-4).

Management Actions

- *Action REC-26(I*):* Provide recreational and interpretive facilities with amenities that provide for visitor orientation, safety, comfort, and resource protection at overlooks, trailheads, and at interpretive kiosks. When possible, utilize construction standards that portray a rustic character.
- *Action REC-27(I*):* Provide trailheads, parking areas, campgrounds, the Goodwin Education Center, roads, and other facilities that support the recreational and interpretation goals of the Monument.
- *Action REC-28(I*):* Improve and expand existing interpretive programs at existing kiosks, the Goodwin Education Center, Soda Lake Boardwalk, Soda Lake Overlook, Wallace Creek, Painted Rock, El Saucito, and other sites. Additional interpretive areas along primary access roads may be developed.
- *Action REC-29(I):* Provide guided tours of Painted Rock and El Saucito Ranch to offer the visitor an opportunity to appreciate the range of cultural history in the CPNM.
- *Action REC-30(I*):* Expand the Goodwin Educational/Visitor's Center to provide additional visitor capacity and to accommodate additional educational and interpretive programming.
- *Action REC-31(I):* Provide directional and informational signage along roads and at recreational/interpretive facilities to help minimize the impact on resources and to provide for visitor safety.

Allowable Uses

- *Allowable Use REC-7(P)*: Allow a wide variety of motorized and non-motorized uses such as driving for pleasure, mountain biking, equestrian use, wildflower viewing, camping at developed campgrounds, hiking, visiting cultural sites and other interpretive sites, and picnicking.
- *Allowable Use REC-8(P)*: Low-impact, non-motorized competitive activities and events that are consistent with the Monument Proclamation and cultural and biological objectives, may be authorized. Require support facilities such as parking and concessions to be located at existing or approved BLM sites or outside of the Monument boundary. Competitive events shall not include the release of nonnative or captive-held native species.
- *Allowable Use REC-9(P)*: A 1,204-acre area from Painted Rock to Selby Rocks will be closed to the following: horses, livestock, dogs, and the discharge of firearms. The closed area would not include Selby Road or Caliente Mountain Road. (See Map 2-3, Painted Rock Exclusion Zone.)
- *Allowable Use REC-10(P)*: An access permit would be required for all self-guided tours to Painted Rock.
- *Allowable Use REC-11(P)*: Painted Rock would be closed from dusk to dawn.
- *Allowable Use REC-12(P)*: Prohibit campfires within the Painted Rock Exclusion Zone (Map 2-3) while still allowing for approved Native American ceremonial use of fire.

II.B.16.6 Monument-Wide Objectives and Management Actions

Objective REC-12(P): Provide limited visitor facilities within the Monument as necessary for visitor access to provide interpretive opportunities, and for the protection of natural and cultural resources.

- *Action REC-1(P)*: Conduct an assessment of recreation sites and programs to determine whether or not they meet the criteria for charging standard or extended amenity fees under the *Federal Lands Recreation Enhancement Act*. If a site or program is determined to meet the criteria, the appropriate process for establishing fees will be followed, which will include opportunities for public involvement.
- *Action REC-2(I*)*: Assess and improve existing overlooks and interpretive facilities and programs as needed and develop additional facilities in keeping with the management goals of each zone.
- *Action REC-3(I*)*: Develop a comprehensive sign plan to include all directional, informational, educational and interpretive signage. Ensure that signing, maps, brochures, and web-based information provide complementary and consistent information and are part of a complete communication program.
- *Action REC-4(I*)*: Develop and maintain public potable water sources where feasible at developed recreation facilities such as campgrounds and the Goodwin Education Center.
- *Action REC-5(I)*: Provide adequate and timely maintenance of all facilities and signs.

Objective REC-13(P): Allow recreation activities and group uses that are compatible with cultural and biological resource objectives and provide opportunities to appreciate the natural and cultural resources.

- *Action REC-6(I)*: Develop a comprehensive communication program to provide information on Monument recreation opportunities:
 - Incorporate a variety of media including the internet, printed materials, and on-site signing and kiosks.

- Incorporate visitor safety and user ethics messages.
- Incorporate timely seasonal information such as road conditions, hunting information, and wildflower viewing updates.
- Work with regional visitor bureaus, chambers of commerce, and other gateway community outreach groups to incorporate accurate Monument information into their programs (including safety and responsible use messages).
- *Action REC-7(I):* Develop a driving/riding interpretive tour through the Monument.
- *Action REC-8(P):* Establish a monitoring program to determine impacts from recreational use on natural and cultural resources and on social, physical, and operational recreation settings. If monitoring indicates direct impacts to resources such as cultural sites, paleontological sites, or special status species, take immediate corrective action, such as establishing permits, seasonal restrictions, or area closures. For less severe impacts, take adaptive corrective actions beginning with the least restrictive approach:
 - Provide visitor use and ethics information.
 - Require permits or establish seasonal restrictions.
 - Close areas.
- *Action REC-9(P):* Permit low-impact, commercial, and organized group recreation activities and events that are compatible with cultural and biological resource objectives and are directly tied to enjoyment and appreciation of Monument resources. Permitted competitive events are allowed in the Backcountry and Frontcountry zones.
- *Action REC-10(P):* Establish supplementary rules and regulations where required (as specified in Attachment 7, Supplementary Rules for Public Use) and carry forward existing supplementary rules and regulations to protect resources and provide for visitor safety.
- *Action REC-11(I):* Develop an education and outreach program that targets motorized recreational visitors to increase resource protection and responsible use, and reduce the incidence of illegal off-road travel.
- *Action REC-12(I):* Coordinate with the Federal Aviation Administration (FAA) and other agencies with management authority over the CPNM airspace to establish parameters for commercial touring flights over the Monument and to discourage commercial low flying aircraft. Specific restrictions and stipulations would be considered for minimum altitudes and numbers of flights to preserve the outstanding opportunities for solitude and isolation and to protect sensitive wildlife resources.
- *Action REC-13(I):* In coordination with the FAA, set the minimum acceptable altitude for aircraft to 2,000ft without authorization from BLM for the purposes of scientific research, education, or special event. All aircraft are prohibited from landing within the Monument without specific authorization from BLM. These limitations and restrictions do not affect emergency flights and landings.
- *Allowable Use REC-1(P):* Aerial sports, including but not limited to: hanging gliding, skydiving, paragliding, parachuting gliders and hobby aircraft, shall be managed as a discretionary action through the Special Recreation Permit process. Any person wishing to partake in an aerial sport within the CPNM will need specific authorization from BLM.

Objective REC-14(I): Provide universal access to new facilities and retrofit existing facilities to comply with the *Americans with Disabilities Act* and the recreation program objectives for each management zone. Retrofitting will also incorporate other applicable requirements such as those for historic structures.

- *Action REC-14(I*)*: Assess all recreation, interpretive, and other public facilities and develop a retrofitting program so that they meet accessibility standards.

Objective REC-15(S): Seek out new and maintain existing partnerships with communities and user groups to further the mission of the Monument and complementary community goals.

- *Action REC-15(S)*: Develop and maintain partnerships with organized user groups such as mountain bike groups, hiking societies, and hunting clubs to promote responsible use, volunteerism, and self-policing, and to educate users about the Monument's cultural and natural resources.
- *Action REC-16(S)*: Develop and maintain partnerships with gateway communities to provide visitor services and/or facilities outside the Monument.

Objective REC-16(P): New types of recreation uses may be allowed if they are compatible with the goals and objectives of this plan. Such uses would be evaluated on a case by case basis to assess potential use conflicts, resource impacts, and safety concerns.



Photo 11: Volunteers Working at Overlook (BLM File)



Photo 12: Recognizing Outstanding Volunteer (BLM File)

- *Allowable Use REC-2(P)*: Above-ground cache activities such as geocaching, earthcaching, and letter boxing may be allowed in non-sensitive areas if the proposed site is consistent with Monument objectives, does not disturb sensitive resources, and BLM provides written authorization for the specific cache site. Unauthorized caches would be removed. Cache activities would not be authorized at sites that are sensitive to Native Americans, such as Painted Rock.

Objective REC-17(P): Target marketing of Monument recreation opportunities to visitors seeking experiences that are compatible with area resource protection objectives and the rustic setting.

- *Action REC-17(S)*: Develop a targeted marketing plan to ensure that visitor information and outreach messages delivered by BLM, gateway communities, and other media are compatible with the Monument's recreation niche and the protection of Monument objectives.

Objective REC-18(I): Provide a comprehensive natural and cultural resource interpretive program that tells the story of the Monument and its significance. (Note: This program is discussed in more detail in the Cultural Resources section).

- *Action REC-18(I)*: Develop a comprehensive natural and cultural interpretive plan for the Monument that identifies core themes, appropriate media, key audiences, priority facility needs (including potential additional visitor center space), and other components.

Objective REC-19(P): Reduce the risk of death or injury to the kit fox and other listed animal species from accidental shootings by eliminating non-game hunting (varmint hunting).

- *Action REC-19(P)*: In coordination with CDFG, eliminate non-game hunting (varmint hunting) within the Monument.

Objective REC-20(P): Continue to provide a wide variety of distinct recreation opportunities through zoning. Emphasize vast open spaces, opportunities for solitude, and provide for compatible dispersed recreation activities.

- *Allowable Use REC-3(P)*: Dispersed camping; considered to be low impact car camping and backpacking, would be allowed in designated areas (Map 3-13). Recreational vehicles, travel trailers, and fifth-wheels are only permitted in campgrounds. Dispersed camping areas would be monitored for impacts. If monitoring indicates direct impacts to resources such as cultural sites, paleontological sites, or special status species, corrective actions such as site stabilization or improvement, permits, seasonal restrictions, or area closure may be taken. For less severe impacts, corrective actions would be taken, beginning with the least restrictive approach:
 - Provide visitor use and ethics information.
 - Develop and encourage use of defined sites within dispersed camping areas. For example, provide for site protection, such as signage, fire rings and lantern holders, and soil stabilization.
 - Require permits or establish seasonal restrictions.
 - Close and rehabilitate areas.

II.B.17 Administrative Facilities

In general, the CPNM has adequate administrative facilities to support the management programs envisioned under the RMP. However, over the life of the plan, there may be a need to develop additional facilities and there will be a need to upgrade existing facilities to accommodate the administration of the Monument.

II.B.17.1 Goal

Goal ADM-1(P): Provide facilities that are consistent with the mission of the Monument and support the management goals identified in this RMP.

II.B.17.2 Objectives and Management Actions

Objective ADM-1(P): Provide administrative and maintenance facilities to support the management of the Monument.

- *Action ADM-1(I*)*: Continue to maintain existing administrative sites on the Monument. This includes the Washburn Ranch and the MU Ranch. Consider development of an administrative headquarters to improve the efficiency of CPNM management, either on-Monument or in an adjacent area.

- *Action ADM-2(I*)*: Determine the need to accommodate future employees, seasonal workforce, and researchers at the Washburn Ranch and increase housing capabilities as needed.
- *Action ADM-3(I*)*: Provide location(s) for researchers to link to the internet and other communication mediums for data transmission and other support needs.
- *Action ADM-4(I)*: Maintain the facilities at the MU Ranch for employees and research housing.
- *Action ADM-5(I*)*: Expand the Visitor Center to better accommodate employees and enhance educational opportunities for the public.

Objective ADM-2(I): Use “green” building techniques that minimize use of natural resources and energy and minimize the need for commercial power and utility corridors related to Monument administrative sites.

- *Action ADM-6(I*)*: Work with Pacific Gas & Electric and CDFG to install solar power at the Visitor Center and the Painted Rock Ranch to eliminate the need for the existing transmission line across the Monument.
- *Action ADM-7(S)*: Incorporate green design elements and alternative sources of power when developing or retrofitting any administrative sites.

II.B.18 Travel Management

The CPNM has a long history of mechanized farming that has resulted in a large network of roads throughout the Monument. Some of these roads are used for visitor enjoyment of the area and for resource management activities. However, many other roads are no longer necessary, poorly sited, redundant, or causing impact on the land. The intent of the travel management program is to provide a travel network that will protect the Monument’s natural and cultural resources, allow for administrative access for management and restoration activities, and provide opportunities for visitors to experience the uniqueness of the CPNM while protecting the objects of the Proclamation. The travel management program also includes limitations on use to ensure safety or to protect resources from degradation due to excessive erosion, dust, wildlife disturbance, and other impacts.

All public lands in the planning area are designated through a two-level process in this RMP. The first level is the Area Designation. Under the Area Designation, all BLM lands in the planning area are designated as either an open area, a limited area, or a closed area regarding vehicle travel under the BLM OHV regulations (at 43 CFR 8342). Under the Monument Proclamation, no off-road motorized or mechanized travel is permitted, so the area designations are either limited area or closed area in the Approved RMP. A second level of designation applies to the roads themselves. Roads are designated within the RMP along with limitations on the types of use allowed. The full definitions are described under Travel Management Terms in the next section. Note that BLM travel management designations only apply to BLM-managed lands, roads and trails, and not to county roads such as Soda Lake or Elkhorn roads. Also:

- Public vehicle use in the planning area is limited to routes designated in this plan. Any areas and routes on public lands within the planning area that are not identified explicitly in this document and associated maps are closed to vehicle use.
- Short spur routes designed for passenger car access to and within campgrounds, trailhead parking areas, and other BLM recreation sites, although they are not identified explicitly, are open to vehicles unless signed, gated, or otherwise closed. Use of routes regardless of designation is allowed for fire, emergency, administrative and other purposes as authorized under 43 CFR 8340.0-5(a)(2), (3), (4), and (5).

II.B.18.1 Travel Management Terms

Open Area: Designated areas where motorized vehicles may be operated, subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343; or an area where all types of vehicles are permitted at all times, subject to the standards in BLM Manuals 8341 and 8343. There are no open areas designated in the planning area or proposed under this RMP, since under the Monument Proclamation, no off-road motorized or mechanized travel is permitted.

Limited Area: Designated areas where the use of off-road vehicles is subject to restrictions, such as limiting the number or types of vehicles allowed (for example, street-legal vehicles only), dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads and trails. Under this designation, use would be allowed only on roads that are signed for use. Combinations of restrictions are possible, such as limiting certain types of vehicles during certain times of the year.

Closed Area: Designated areas and trails where the use of off-road vehicles is prohibited. The use of off-road vehicles in closed areas may be allowed for certain reasons; however such use shall be made only with the approval of the authorized officer.

Designated Roads: Specific roads, primitive roads, routes, and trails as defined by BLM travel management policy where one of the following allowable uses apply:

- Motorized: Vehicles that are motorized including but not limited to cars, trucks, motorcycles, and all-terrain vehicles (ATVs) powered by combustion engines or other means. Further restrictions may apply including type and size of vehicle, seasonal use, and license type or permit. (Note: For the CPNM, only street-legal vehicles are permitted under the Approved RMP.)
- Non-motorized: All modes of transport propelled by means other than combustion or electric motor. This includes bicycles, equestrian, pedestrian, and other livestock-based modes of transportation. Further restrictions may apply including type and nature of transport, size of vehicle, and seasonal use.
- Non-mechanized: Modes of transport consisting of no machined parts. This includes pedestrian travel and travel by livestock.
- Authorized use: Modes of transport authorized by the authorizing agency.
- Closed: Closed to all motorized and mechanized vehicles. Pedestrian and equestrian use is permitted unless otherwise closed (for example, seasonal wildlife closures or unsafe conditions).

The vast majority of the roads within the Monument are designated for authorized use, public foot, equestrian, and non-motorized traffic (such as mountain bikes). The following are exceptions:

- Any road within ¼ mile of the Washburn Administrative Site and the access road to the MU Ranch Headquarters buildings are closed to all public access except for specific events authorized by BLM (5 miles).
- The road between the Goodwin Education Center and Painted Rock would remain closed to all public use from March 1st to July 15th to protect nesting birds (2.5 miles).
- Primitive routes within the Caliente Mountain WSA and areas identified for management for wilderness characteristics would be closed to motorized uses and mechanized uses such as mountain bikes.

II.B.18.2 Goal

Goal TRV-1(P). Identify and manage an effective travel network that supports management activities and appropriate public uses while protecting the objects of the Monument Proclamation.

II.B.18.3 Network-Wide Objectives, Management Actions, and Allowable Uses

Objective TRV-1(P): Provide a safe and effective travel network (including roads and trails) that supports administration and public recreation use of the Monument commensurate with the respective recreation management zone objectives.

- *Allowable Use TRV-1(P):* Travel designation is limited area for the Backcountry and the Frontcountry zones. The Primitive zone will be designated as a closed area. No areas in the Monument are designated as open areas based on the Monument Proclamation. Under the Monument Proclamation, “the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.”
- *Action TRV-1(I):* Develop a comprehensive travel information program that includes road/trail signing, brochures, web information, and other appropriate media to inform visitors of conditions, vehicle limitations, rules, regulations, and other safety concerns.
- *Action TRV-2(I):* Roads would be subject to temporary closure during wet periods and after washouts to minimize road damage, reduce resource impacts, and for public safety reasons. These closures would typically be short-term (closures would be implemented under the emergency closure authority of 43 CFR 8340) but would be in place until conditions improve or repairs are completed.

Objective TRV-2(P): Provide reasonable access to private surface land inholders and mineral estate owners as required by law.

- *Management Action:* See Lands and Realty section for right-of-way authorizations.

Objective TRV-3(I):* Ensure that the Monument road network is designed and managed to minimize impacts to natural and cultural resource values.

- *Action TRV-3(I):* Develop a road maintenance plan that identifies and determines maintenance techniques or reconstruction opportunities to protect cultural and biological resource sites.
- *Action TRV-4(I):* Identify and close unneeded or redundant travelways as identified on Map 2-4.
- *Action TRV-5(I):* Upon acquisition of private land inholdings, access roads to these parcels would be evaluated for inclusion in the transportation network or closure based on the following criteria:
 - Are they compatible with the objectives of the RMP for protection of cultural and natural resources?
 - Do they provide necessary access for administrative purposes?
 - Do they enhance public recreation access or experiences identified for the respective recreation management zone?
- *Action TRV-6(I*):* Roads that meet at least the first two criteria will be designated as non-motorized roads that meet at least the first and last criteria will remain open to public access (designated as motorized). All other roads will be closed.

- *Action TRV-7(I*)*: Minimize impacts to water quality and other resources through proper design, maintenance, or minor rerouting of roads.
- *Action TRV-8(I*)*: Take actions to reduce illegal off-road travel such as education, enforcement, and placement of physical barriers.
- *Action TRV-9(P)*: Improve public safety and reduce the number of animal road-strikes by establishing reduced speed limits on BLM roads in high public use areas or areas with a high frequency of wildlife road strikes. Recommend speed limit reductions on county road segments with same issues.
- *Action TRV-10(P)*: All existing routes within the Primitive zone would be managed for wilderness characteristics and designated as closed to public use. These roads will be converted into trails or rehabilitated back to their natural state. Certain specific routes that are necessary for administrative access would be available for this use based on a minimum requirements assessment (that is, an assessment that determines vehicle access as a necessity with no reasonable alternatives for access, for example, to carry heavy materials for fence repair or to remove and haul out derelict structures).
- *Allowable Use TRV-2(P)*: Under the Approved RMP, the travel network is designated as shown on Map 2-4. The miles of specific road designations are listed below:

Road Designations		Area Designations	
Motorized: street-legal only	166 miles	Open	0 acres
Motorized	18 miles	Limited	184,361 acres
Non-motorized	113 miles	Closed	62,455 acres
Closed roads	42 miles		
Non-mechanized	24 miles		
Authorized use only	5 miles		
Pedestrian only	2.3 miles		

II.B.18.4 Backcountry Zone Objective and Allowable Use

Objective TRV-4(P) – Road Maintenance: The majority of the roads in the Backcountry zone would be maintained at a level 1 and 2 BLM maintenance standard. Many of the roads in this zone would be maintained only based on significant public safety issues or to prevent and/or repair damage to a natural or cultural resource. Roads in this zone would only be accessible with high clearance or four-wheel drive vehicles.

Allowable Use TRV-3(P): Only street-licensed vehicles would be allowed in the Backcountry zone. No green or red sticker vehicles registered under the state OHV program would be allowed. Non-street licensed vehicles (ATVs, motorcycles) would be permitted on a portion of the Temblor Ridge Road from T31S, R21E, Section 23 to T11N, R24W, Section 7 allowing connectivity to the eastern slopes of the Temblors. Staging for activities and trailing of non-street licensed vehicles would be prohibited along Temblor Ridge Road.

II.B.18.5 Frontcountry Zone Objective, Management Action, and Allowable Use

Objective TRV-5(P) – Road Maintenance: BLM roads in this zone would be maintained at a level of 3 or 4. This would allow most passenger cars to access popular recreation sites in good weather.

- *Action TRV-11(S)*: Work with San Luis Obispo County to maintain Soda Lake Road comparable to a level 4 BLM maintenance standard.

Allowable Use TRV-4(P): Only street-licensed vehicles would be allowed in the Frontcountry zone. No green or red sticker vehicles registered under the state OHV program would be allowed.

II.B.19 Minerals

The Monument contains a number of extractable minerals, that is, minerals that are removed from the land by mining, through a well bore, or by other means. These minerals include oil and gas, sand and gravel, gypsum, phosphate, sodium sulfate, and others.

Under the Monument Proclamation, all federal lands and interests in lands within the boundaries of this Monument were appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument. However, the establishment of the Monument was also subject to valid existing rights. Accordingly, only those valid leases, claims, and other rights that existed as of the date of the Proclamation, January 17, 2001, may see mineral development on federal lands within the Monument.

These minerals will be managed in accordance with the *Mineral Leasing Act* of 1920, as amended; the *Mining and Minerals Policy Act* of 1970; the *Mining Law* of 1872, as amended; the *Federal Onshore Oil and Gas Leasing Reform Act* of 1987 (*Reform Act*); FLPMA; 43 CFR, Onshore Orders 1-8, Notices to Lessees; NEPA; the *Energy Policy Act* of 2005; and other laws, regulations, and orders, and also in accordance with all applicable state, county, and local laws and ordinances.

Most aspects of the Monument's mineral development are controlled by law and policy that give little latitude for discretion at the RMP level. BLM will require existing lessees to strictly adhere to all laws, regulations, and policies that govern existing oil and gas leases, while at the same time recognizing that existing leases grant the lessee certain rights. No additional requirements can be placed on an existing lessee that conflict with the rights already granted by the lease. However, BLM will actively work with leaseholders and encourage them to implement management practices that recognize and protect the special qualities of CPNM resources.

As discussed in Chapter III, much of the Monument is underlain with privately owned mineral rights. This private ownership interest is not subject to the same framework of regulations that apply to Federal leases and so is discussed as a separate topic in the Approved RMP. Land management decisions must not preclude the ability of private mineral owners to make reasonable use of the surface, as determined in consideration of deed provisions as well as state and Federal law. Reasonable surface use for the development and operation of subsurface rights will be evaluated based on the design criteria and other direction of this plan. Private mineral development is subject to the provisions of NEPA (and/or the *California Environmental Quality Act* (CEQA)), the *Endangered Species Act*, and applicable state, county, and local laws and ordinances.

II.B.19.1 Goals

- *Goal MNL-1(P)*: Manage the exploration, development, and abandonment of oil and gas on existing federal leases in a manner that protects the objects of the Monument Proclamation.

- *Goal MNL-2(P)*: Work with federal, state, county, and local agencies to ensure that the mission and purpose of the CPNM are furthered and only reasonable uses of public lands are made to access and develop private mineral estate.
- *Goal MNL-3(P)*: Develop and manage small mineral material borrow sites on federal mineral estate for emergency and/or administrative use in a manner compatible with the mission of the CPNM.

II.B.19.2 Objectives and Management Actions

II.B.19.2.1 All Mineral Exploration and Development

Objective MNL-1(I)*: Establish SOPs and implementation guidelines, including BMPs, for all projects to ensure that Monument resources are protected while allowing reasonable access for valid existing rights for mineral development. SOPs and BMPs will also incorporate requirements to minimizing noise impacts.

II.B.19.2.2 Existing Oil and Gas Leases

Objectives

- *Objective MNL-2(I*)*: Manage existing leases to ensure ongoing interim and timely final restoration of leased lands so that they are returned to natural function and conditions.
- *Objective MNL-3(S)*: Enforce good housekeeping requirements (that is, require operators to maintain a neat and orderly appearance of sites, remove junk and trash, and otherwise minimize landscape intrusions).
- *Objective MNL-4(I*)*: Manage leases to minimize fragmentation of habitat (including removal of redundant roads and unused pipelines, storage tanks, and other infrastructure).
- *Objective MNL-5(I*)*: Process permits in a timely fashion as required by the *Leasing Reform Act* of 1987, Onshore Orders and Notices to Lessees, the *Energy Act* of 2005, and other laws, regulations, and policies; and consistent with federal, state, and local laws and regulations and dependent on agency staff and resource limitations.
- *Objective MNL-7(P)*: Manage existing leases with additional requirements (above federal standards) to protect Monument resources.

Management Actions

- *Action MNL-1(I*)*: All projects will be reviewed and the SOPs contained in Attachment 3 (SOPs and Implementation Guidelines for Projects Affecting the Biological Environment) and Attachment 4 (Minerals SOPs / BMPs / Implementation Guidelines and Conditions of Approval) will be applied.
- *Action MNL-2(I)*: BLM inspection staff will inspect all facilities for environmental compliance on federal lands. Shut-in or abandoned wells will be inventoried and evaluated for final plugging and restoration prioritization. This inventory and evaluation will be completed within six months of the effective date of this RMP.
- *Action MNL-3(S)*: As leases stop producing, process termination or expiration in a timely manner.
- *Action MNL-4(I*)*: Conduct annual surface inspection on all leases within the CPNM to identify and remediate any hazards or impacts to Monument resources such as threatened and endangered species and cultural resources.

- *Action MNL-5(I*)*: Conduct training for operators regarding CPNM management goals and sensitive resource values and recommended BMPs to protect these values. Review, revise, and/or develop additional CPNM-specific BMPs every five years, or more frequently if necessary, to protect these management goals and sensitive resource values.
- *Action MNL-6(I*)*: Manage the existing oil producing acreage on the southern side of the Caliente Range to maintain ecological processes and to assure prompt lease restoration upon final abandonment of the last well.
- *Action MNL-7(I*)*: Review (in conjunction with operators) existing disturbed areas (such as roads and well pads) and require reclamation of those areas determined to be redundant or no longer needed. Conduct this review within one year of the effective date of this RMP.
- *Action MNL-8(I*)*: Design roads, well pads, and facilities to impact and fragment the least acreage practicable. New facilities will be designed to maintain natural drainage and runoff patterns, reduce visual impacts, and reduce hazards to wildlife, especially California condors. Encourage operators to modify existing facilities when necessary to achieve the above objectives, and consider providing BLM funds to assist if requiring modifications is beyond BLM's authority on existing leases.
- *Action MNL-9(I*)*: Ensure BMPs are followed. Examples include:
 - Placing pipelines along roads and consolidating facilities when feasible.
 - Selecting appropriate paint colors to minimize visual impacts and otherwise meeting VRM goals.
 - Timely interim reclamation/reduction of footprint of operations after initial drilling.
 - Operators will be encouraged/required to place multiple wells on a single pad where feasible in order to minimize unnecessary disturbance.
- *Action MNL-10(I*)*: Wells that are not commercially developed must be properly plugged and abandoned and reclaimed to natural contours and revegetated as soon as appropriate; that is, restoration methods will consider timing of planting, acceptable species and evaluation criteria, and will be tailored to area-specific resource conditions and be compatible with the Monument Proclamation.
- *Action MNL-11(I*)*: Applications for Permit to Drill, Sundry Notices (leasehold activities requiring surface disturbance), and Final Abandonment Notices will be reviewed using the existing NEPA approval process, including timely posting on the Field Office's web site.
- *Action MNL-12(I*)*: Require timely plugging and abandonment of depleted wells. This includes plugging the well bore with cement, removing all materials and equipment, and recontouring/revegetating as specified in the conditions of approval.
- *Action MNL-16(I*)*: For all new lease actions, require protection based on lease stipulations, conditions of approval, and BLM regulations, consistent with other BLM leases within threatened and endangered species habitat.
- *Action MNL-17(I*)*: Encourage and work with operators to implement management actions to lessen the visual impacts of existing developments.
- *Action MNL-18(S)*: Over and above the requirements of BLM's Inspection and Enforcement Strategy, petroleum engineering technicians will conduct detailed lease inspections of federal oil facilities and wells at least annually and more often when problems are found. The purpose of the inspections will be to ensure compliance with all laws, regulations, conditions of approval, and other requirements that affect areas such as safety, production and royalty accountability, and the environment.

- *Action MNL-19(I*)*: Encourage operators to concentrate on using federal wells to meet California Division of Oil, Gas, and Geothermal Research idle well requirements. These requirements call for each operator to eliminate (return to production or plug) 4 percent of all 5-year idle wells (federal or private) per year. BLM will encourage operators to focus on federal wells within the Monument.
- *Action MNL-20(S)*: Prioritize termination of all idle leases in the Monument.
- *Action MNL-21(P)*: Allow access for geophysical exploration, but with conditions of approval that ensure protection of Monument objects (such as threatened and endangered species).
- *Action MNL-22(I*)*: Encourage operators to conduct interim reclamation of redundant or unnecessary disturbed areas.

II.B.19.2.3 Other Minerals (Solids)

Objectives

- *Objective MNL-6(I*)*: Provide for small volumes (less than 10 yards per incident) of administrative/emergency sand and gravel materials (for maintenance).
- *Objective MNL-8(P)*: Provide materials to facilitate limited emergency road repair or maintenance.

Management Actions

- *Action MNL-13(I*)*: Identify potential site for emergency/administrative sand and gravel extraction (minor amounts, less than 10 yards per incident) for road maintenance, etc.
- *Action MNL-23(P)*: Identify and develop a material site in the Monument for limited administrative/emergency Monument use (less than 10 yards per incident) on BLM roads. No other mineral materials uses will be authorized.

II.B.19.2.4 Private Mineral Estate (Use of BLM Surface for Private Mineral Activities)

Objective

- *Objective MNL-9(P) -- Non-Geophysical*: Allow for reasonable exploration and development of private mineral estate consistent with protection of Monument resources.

Management Actions

- *Action MNL-14(I*)*: For all private oilfield actions that require use of BLM surface, including cross-country travel on BLM lands to reach private minerals, any authorization will require the operator to implement "take avoidance" measures and mitigation that will protect the objects of the Monument Proclamation.
- *Action MNL-15(I*)*: BLM will meet with operators to determine what sort of limitations should be placed on exploration and development activities to protect Monument objects while still meeting the legal requirements to provide "reasonable access." This will include multiple wells per pad, seasonal restrictions, modifications to meet visual goals, and others. BLM will also periodically meet with operators and other interested parties to present proposed conditions and respond to comments.
- *Action MNL-24(I*)*: Primary focus is to attempt to acquire private minerals from willing sellers whenever surface estate is purchased.

- *Action MNL-25(I*)*: Secondary focus is to attempt to acquire (from willing sellers) split estate private minerals (where BLM already owns the surface).

II.B.19.2.5 Geophysical Exploration

Objective

- *Objective MNL-10(I*)*: Authorize geophysical activities within the Monument for exploration of mineral resources (regardless of ownership) inside or outside the boundary of the Monument in a manner that protects the objects of the Monument Proclamation.

Management Action

- *Action MNL-26(I*)*: Only authorize geophysical activities that do not result in damage to the objects of the Monument Proclamation. Such activities will include walking out and/or the use of helicopters to deploy geophone lines. On a case-by-case basis, ATVs could be used to deploy geophone lines. Other activities will include limiting all source points (vibroseis and shot holes) to existing roads. On a case-by-case basis, drilling of shot holes using heliportable or small portable drills for underground detonation will be allowed off road.

II.B.20 Lands and Realty

This section provides direction for realty actions within the Monument grouped into two major categories:

- Land tenure adjustments, which are primarily acquisition of private lands to increase the public land acreage within the Monument.
- Realty actions and utility corridors, which involve authorizing access across and use of public lands within the Monument for specific purposes.

The Proclamation establishing the CPNM is subject to valid existing rights. The Monument Proclamation provides specific guidance regarding acquisition of private inholdings, both surface estate and mineral estate. Lands would be acquired by BLM under the authority of FLPMA Section 205 or under any specific authority enacted subsequent to the plan. The requirements of the *Uniform Relocation and Real Property Acquisition Policies Act* of 1970 would need to be met in all land acquisitions. The Monument Proclamation provides specific guidance regarding land use authorizations such as rights-of-way, recreation and public purpose leases, land use permits, and easements. This plan incorporates the guidance under the authority of FLPMA Title V, Sections 501–511; Section 28 of the *Mineral Leasing Act* of 1920, as amended ; and the BLM Right-of-Way Manual, Sections 2801.11 and 2801.12.

II.B.20.1 Goals

- *Goal LR-1(P)*: Land tenure adjustments such as acquisition within the Monument would be managed to further the overall purposes of the Monument Proclamation, which are protection of natural features, including endangered, threatened, and rare animal and plant species; the San Andreas Fault zone; Soda Lake; fossil resources; and cultural resources.
- *Goal LR-2(P)*: All realty actions such as rights-of-way, land use permits, and other realty actions within the Monument would comply with the overall purposes of the Monument Proclamation.
- *Goal LR-3(P)*: Eliminate unauthorized use of public lands.

II.B.20.2 Objectives, Management Actions, and Allowable Uses

II.B.20.2.1 Land Tenure

Objectives

- *Objective LR-1(P)*: Retain all lands within the CPNM currently in federal ownership, except for certain specific situations that would further the purposes of the Monument Proclamation as described in the management actions below.
- *Objective LR-2(P)*: Consolidate and/or acquire land and/or mineral estate from willing sellers.
- *Objective LR-6(P)*: Pursue acquisition of all lands within the Monument boundary. Where opportunities exist, prioritize acquisition efforts to those lands with important biological and cultural resources, especially those habitat types or cultural sites that currently have limited acreage in public ownership.

Management Actions

- *Action LR-1(I*)*: Acquire all non-federal land and/or mineral estate within the boundaries of the Monument if it may further the protective purposes of the Monument, from willing sellers by purchase, exchange, or donation, as opportunities arise.
- *Action LR-2(S)*: Work with partners, such as TNC and CDFG, to pool resources and avoid duplication of effort.
- *Action LR-3(I*)*: Where land cannot be acquired, pursue conservation easements or other forms of protection.
- *Action LR-4(P)*: The only form of land exchange within the Monument boundary, as stated in the Monument Proclamation, would be an “exchange that furthers the protective purposes of the Monument.” Exchanges would be evaluated on a case-by-case basis. Lands acquired with Land, Water, and Conservation Funds are not available for disposal or exchange. All lands acquired through a compensation program would only be exchanged after consultation with appropriate agencies, such as USFWS and CDFG.
- *Action LR-5(P)*: Federal lands within the Monument are “...hereby appropriated and withdrawn from all forms of entry, location, selection, sale or leasing or other disposition under the public land laws....” Therefore, these federal lands are not open to application for land sales, state grants, *Recreation and Public Purposes Act* leases or sales, desert land entries, native allotments, or agricultural leases.
- *Action LR-6(I*)*: Use so-called friendly condemnation authority to acquire parcels within the Monument where the landowners are willing sellers, but are unable to complete a sale to BLM due to title problems.
- *Action LR-7(I)*: Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, development threats, and management needs.
- *Action LR-8(I)*: Identify target inholdings. Encourage sale or transference of target properties through a variety of methods and incentives.
- *Action LR-9(I)*: Primary focus would be to acquire property that supports important cultural resources or habitat for and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.

- *Action LR-10(I)*: Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and its playa system) that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, San Joaquin kit fox, bull-nosed leopard lizard, San Joaquin antelope squirrel), or that support other important CPNM species (spadefoot toad, fairy shrimp, mountain plover, rare plants).
- *Action LR-11(I)*: Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.
- *Action LR-12(I)*: Target inholdings that may have management needs or risk of development or occupancy.
- *Action LR-13(I)*: Develop and maintain a GIS database showing the location of target resources to facilitate acquisition efforts.

II.B.20.2.2 Realty Actions and Utility Corridors

Objectives

- *Objective LR-3(P)*: Ensure that all real estate actions initiated by BLM protect or enhance the values identified within the Monument Proclamation.
- *Objective LR-4(P)*: Ensure that all real estate actions initiated by parties other than BLM are compatible with the values identified within the Monument Proclamation.
- *Objective LR-5(P)*: Manage all existing authorizations within the Monument in keeping with overall purposes of the Monument Proclamation while respecting valid existing rights.
- *Objective LR-7(P)*: Minimize communication rights-of-way authorizations on the Monument.

Allowable Uses

- *Allowable Use LR-1(P)*: The Monument would be a right-of-way avoidance area. This means that applications for new rights-of-way for utility lines, wind energy, solar energy, pipelines, or other purposes that would cross the Monument and not directly serve a land parcel within the Monument would be discouraged and would likely be rejected. The U.S. could reserve rights-of-way for federal facilities, administrative roads, or utility rights-of-way.
- *Allowable Use LR-2(I*)*: Right-of-way applications would be evaluated on a case-by-case basis, such as applications for research or scientific rights-of-way, or existing roads for private lands within the Monument. If granted, rights-of-way would contain terms and conditions to protect resources, such as any listed species and their habitat, other wildlife and their habitat, significant geologic features, and paleontological and cultural resources.
- *Allowable Use LR-3(P)*: Since the Monument Proclamation withdrew all federal lands, no new withdrawals would be pursued or anticipated within the Monument boundary.
- *Allowable Use LR-4(P)*: Applications for land use permits, such as filming permits, would be evaluated on a case-by-case basis. A permit is required for all commercial filming activities on public lands. (This process is described further in Lands and Realty section in Chapter III, Area Description and Resource Values.) No apiary permits will be issued in the Monument. Still and video photography of the pictograph images at Painted Rock and other rock art sites in the Monument would be prohibited for commercial purposes. Permits would only be issued for photography related to activities of accredited scientific, academic, or research institutions (for example, museum or university). Applications would be evaluated on a case-by-case basis.

- *Allowable Use LR-5(P)*: Pursue extinguishing overlapping withdrawals within the Monument, such as the “National Cooperative Land and Wildlife Management Areas” and the “Classification and Multiple Use” classifications.
- *Allowable Use LR-6(I*)*: Pursue relinquishing unneeded, existing rights-of-way, such as power lines, private easements, and county road easements.
- *Allowable Use LR-7(I)*: BLM would survey and Monument (place survey markers) the exterior boundary of the Monument and any other boundaries within the Monument needed for administrative purposes.
- *Allowable Use LR-8(P)*: The Caliente Mountain WSA and all areas to be managed for wilderness characteristics (Primitive recreation management zone) would be rights-of-way exclusion areas (with the exception of required administrative and private inholder access).
- *Allowable Use LR-9(P)*: The two current utility corridor designations would be removed in keeping with the management of the Monument as a right-of-way avoidance area. The existing rights-of-way currently within the designated utility corridors would be continued as long as the holders maintain the authorizations. Note: BLM Manual Part 2801 directs that designated utility corridors can be removed through a land use planning decision.
- *Allowable Use LR-10(P)*: No new or renewed communication right-of-way would be authorized unless they could meet the objectives of the Monument Proclamation and the VRM classifications in this plan. All applications would be analyzed and authorized on a case-by-case basis. However, consideration will only be given to applications that are proposing to use an area that already has existing sites and can utilize existing facilities with no or negligible visual intrusions. As part of the application process, project proponents would need to provide a visual simulation of the project showing mitigating features to reduce its visibility from key observation points within the Monument.
- *Allowable Use LR-10(P)*: Require applicants to clearly demonstrate that no feasible off-Monument alternatives exist for placement of facilities prior to analyzing placement within the CPNM (that is, the burden will be on the applicant to demonstrate that location on the Monument is clearly justified given the management goals for the area).

Management Action

- *Action LR-14(I)*: Work with existing communication site right-of-way holders to find alternative off-Monument locations for facilities once their current leases expire.

II.B.21 Research Management

The Monument Proclamation directs BLM to care for and manage the biological, archeological, historical, paleontological, and geological resources of the Monument. Research provides critical knowledge to make informed, effective, and timely decisions regarding these resources and the effects of allowable uses and outside factors such as climate



Photo 13: Research on Blunt-Nosed Leopard Lizard (BLM File)

change or air quality that may affect the Monument. Research is a critical component of an adaptive management approach. It provides the public with an increased understanding of the resources and the value of protecting them. Information gained through research better equips the public to provide informed input about how their public lands should be managed. Some research, as with studies along the San Andreas Fault, can increase scientific understanding and benefit public welfare. Monitoring ongoing changes at the micro and macro level, surveying existing resources, and inventorying new resources are necessary for maintaining an overall understanding of the natural processes that are occurring and for adapting management actions in response to new information. See sections on Geology and Paleontology, and Cultural Resources for more detailed information on research related to these fields. The goal, objectives, and management actions for research activities are stated below.

II.B.21.1 Goal

Goal RM-1(P): Conduct research within the Monument to improve understanding, management, and protection of Monument resources and to further scientific knowledge of those resources.

II.B.21.2 Objectives and Management Actions

Research Priority

Objective RM-1(I): Authorize and encourage on-Monument research in the following order of priority:

- Research that has direct implications for improving management and protection of objects of the Monument Proclamation as identified as objectives in the RMP and the Conservation Target Table (Attachment 5).
- Research that furthers scientific understanding of Monument resources.
- Research that has scientific value, but may have only indirect benefits for understanding or management of Monument resources.

Management Actions

- *Action RM-1(I):* Identify research priorities and update or revise annually or on an as-needed basis.
- *Action RM-2(I):* Working through organizations such as TNC and universities, allow outside review by scientific experts, as needed, to provide recommendations on study design or effectiveness in meeting management goals.
- *Action RM-3(I):* Focus research efforts on projects or studies whose topics are useful in formulating management actions and promote conservation, with special emphasis on listed or sensitive species and their habitats and significant cultural resources.
- *Action RM-4(I):* Develop a strategy for prioritizing multiple research proposals.
- *Action RM-5(I):* Create and adopt a research code of ethics in cooperation with the managing partners and other professionals.
- *Action RM-6(I):* Maintain the Conservation Target Table (Attachment 5) to determine management prescriptions of biological resources. Encourage and assist researchers in developing studies to answer questions relating to the resource targets and how management actions affect them. Update the table as knowledge is gained.

Research Outreach and Support

Objective RM-2(I): Provide a framework that encourages and facilitates quality research in areas of biologic, paleontological, geologic, and cultural resources.

Management Actions

- *Action RM-7(I):* Provide support, such as housing, within the Monument for researchers when available. Investigate other housing opportunities such as acquiring used mobile units or working with neighboring communities to identify available housing in the private sector.
- *Action RM-8(I):* Provide existing GIS, weather, and vegetation mapping data or other data as available, to researchers.
- *Action RM-9(I):* Work with species experts, members of academia, and other professionals to encourage research involvement. Encourage research projects that will aid in maintaining stable and increasing populations of threatened and endangered species, investigating topics identified in recovery plans.
- *Action RM-10(I):* Consider other outreach methods including sponsoring research symposia to inform the scientific and professional communities of research opportunities within the Monument.
- *Action RM-11(I):* Coordinate with partners and the scientific community to assess opportunities for establishing an on-Monument research facility.
- *Action RM-12(I):* Work with local schools, organizations and groups, and local communities to enlist citizen-scientists or other volunteers to assist with monitoring and research or field activities.

Research Data

Objective RM-3(I): Data gathered through research, inventories, and monitoring will be made available to the scientific community and the public to the greatest extent possible. This will exclude proprietary information such as cultural and paleontological resource data.

Management Actions

- *Action RM-13(I):* Use state-of-the-art equipment and technology consistent with BLM standards for accurate data collection, retrieval, and storage, and for the benefit of information-sharing with the public, educational institutions, and other governmental agencies.
- *Action RM-14(I):* Create a local information archive system of CPNM-generated research, inventory, and survey data for easy retrieval and use by the scientific community, other agencies, partner organizations, and others, to be maintained in conjunction with the Carrizo Library (excluding cultural resources, Native American, or other proprietary information).
- *Action RM-15(I):* Manage data consistent with CPNM, BLM, and NLCS policies such as the Department of the Interior's *Adaptive Management Technical Guide* (USDI 2007) and the *NLCS Science Strategy's* science goals and objectives (BLM 2007).
- *Action RM-16(I):* Maintain a list of past and current research, inventory, and survey data on the CPNM website for use by the public.
- *Action RM-17(I):* Maintain current aerial photography imagery of the CPNM, digital GIS layers of resources and infrastructure, and utilize other technologies as changes occur and staffing and funding is available.

- *Action RM-18(I)*: Develop an educational component to data sharing in conjunction with the Goodwin Education Center and the Friends of the Carrizo to provide outreach to schools and the public.
- *Action RM-19(I)*: Increase the Monument's capacity to collect relevant weather data across the landscape in varying habitats.

Research Proposal Evaluation/Authorization

Objective RM-4(I): Evaluate and process proposals in a timely manner while ensuring that projects meet Monument research objectives and protect sensitive resource values.

Management Actions

- *Action RM-20(I)*: All research projects will undergo an evaluation and approval process which will include:
 - An assessment of its priority level (see Research Priority objective).
 - An appropriate level of environmental analysis (NEPA) by BLM staff.
 - Incorporating project-specific stipulations.
 - A final written determination, which will be in the form of an authorization, a request for changes to the proposal for resubmission, or denial of the project. (Cultural research and paleontological proposals must meet permit standards and receive approval from the State Office and Field Office to proceed in the field or they must be authorized through a volunteer or cooperative partnership meeting BLM's Cultural Resources Manual 8100 and permit standards).
- *Action RM-21(I)*: Proposals determined to require further evaluation will be submitted to knowledgeable members of the scientific community. These experts will review proposals for scientific merit, how best to incorporate findings into management actions, and to propose additional research needs.
- *Action RM-22(I)*: BLM will coordinate with the Monument's Native American Advisory Committee and tribal and other Native Americans before approving research for cultural resources.



Photo 14: Rock Outcrop (BLM File)

II.C Public Involvement

The CPNM RMP provides opportunities for the public, interested agencies, and the managing partners to obtain information on BLM's implementation of the RMP management actions and to provide input to the management process. These are identified throughout the plan, and include the following:

- The Conservation Target Table and associated Pasture Management Table will be maintained by BLM and available to the public. They are considered to be works in progress and will be subject to ongoing review by the managing partners, the scientific community, species experts, the MAC, the USFWS, and the public.
- Recreation sites and programs will be assessed to determine whether or not they meet the criteria for charging standard or extended amenity fees under the *Federal Lands Recreation Enhancement Act*. If a site or program is determined to meet the criteria, the appropriate process for establishing fees will be followed, which will include opportunities for public involvement.
- Use state-of-the-art equipment and technology consistent with BLM standards for accurate data collection, retrieval, and storage, and for the benefit of information-sharing with the public, educational institutions, and other governmental agencies. Maintain a list of past and current research, inventory, and survey data on the CPNM website for use by the public.

These opportunities for involvement are in addition to the numerous management actions with a primary objective related to public education and interpretation, and those opportunities that would be afforded during any implementation-specific NEPA process, which would be announced through newspaper and *Federal Register* notices, as required.

II.D Management Plan Implementation

Implementation of the RMP begins when the California BLM State Director signs the ROD. Many RMP decisions, such as allowable uses and recreation management zone allocations, become effective upon approval of the RMP. Management actions that require additional site-specific project planning, such as measures to control nonnative plant species or use of prescribed fire, will require further environmental analysis. A detailed, decision-specific implementation and funding strategy will also be completed to facilitate RMP implementation. This strategy will outline a three-to-five year schedule of priority projects and associated funding needs. The pace of implementation of certain cost-intensive aspects of the RMP (such as expanding the Visitor Center or purchasing inholdings from willing sellers) will be contingent on the availability of BLM and partner funding. The implementation strategy will be a "living" document, updated on a regular basis to retain a three-to five year outlook.

II.E Plan Evaluation/Adaptive Management

During implementation of the RMP, additional documentation will be required to comply with NEPA and the *Endangered Species Act*. Land use planning decisions that are implemented upon approval of the RMP do not require any further environmental analysis or documentation. Implementation actions such as the above-mentioned examples of measures to control nonnative plant species or use of prescribed fire would require additional environmental analysis or documentation. These actions would be implemented within parameters established by the decisions in the RMP. Environmental documentation can vary from a statement of conformance with the ROD to more complex documents that analyze several alternatives. All such documents will be prepared with the appropriate level of public input as required by NEPA.

Implementation of the CPNM RMP will use an adaptive management process. Adaptive management recognizes that ecosystems are incredibly complex and our understanding of them is limited. Thus, the greatest hurdle to overcome in effective resource management is uncertainty. Adaptive management acknowledges that there are incomplete data when dealing with natural resources and social issues, and that through continued research and monitoring of the success of management practices, new information will be collected. This new information is evaluated, and a determination is made whether to adjust the strategy or goals accordingly to improve success.

There are gaps in information regarding certain effects of resource management practices. However, there is enough reliable information, field experience, and research data to proceed with implementation of the plan decisions, knowing that they will have certain beneficial effects. Adaptive management is designed to improve implementation and increase the success in achieving the long-term goals and objectives of the CPNM RMP.

Essential requirements for adaptive management include:

- Clear goals and objectives (throughout RMP)
- Clear standards and guidelines (for example, California Rangeland Health Standards)
- A process for changing standards and guidelines or goals (see Section II.E, Plan Evaluation/Adaptive Management)
- Monitoring and/or research aimed at adaptive management questions (ongoing)

The adaptive management process generally includes four phases: planning, implementation, monitoring, and evaluation. The main planning phase is completed with the publication of this document and will be further refined through the development of an implementation strategy and specific activity and project plans. The implementation phase involves actual project completion, such as instituting recreation carrying capacities, or completing corrective maintenance actions on a road segment. Monitoring data are used to assess resource conditions, identify resource conflicts, determine if objectives are being met, and periodically refine and update desired conditions and management strategies. The RMP decisions in the Approved RMP incorporate monitoring measures for a variety of resources.

Evaluation is the process in which data from monitoring are reviewed to see if management goals and objectives are being met and if management direction is sound. This portion of the adaptive management strategy examines monitoring data and uses them to draw conclusions on whether management actions are meeting stated goals and objectives or, if not, why. The conclusions are used to make recommendations on whether to continue current management strategies/implementation actions or to make changes to meet RMP goals and objectives. For example, in maintaining the ecological processes and hydrologic vitality of the Monument's vernal pools and sag ponds, BLM will determine the role of livestock grazing in maintaining characteristics necessary for the health and viability of fairy shrimp populations, and then identify measures consistent with those findings to meet the RMP objectives for vernal pools and sag ponds. The process would continually evolve as improved treatment methods are determined through monitoring/evaluation.

An evaluation schedule needs to be set in advance to ensure that:

- evaluations are conducted at intervals that allow for corrections in management direction before crises develop
- monitoring data are gathered in advance to be used in the evaluation process

- the appropriate evaluation team is assembled to conduct the evaluation

Management evaluations made too frequently will not detect changes in ecosystems because cost-effective monitoring systems cannot detect changes at this scale. On the other hand, if ecosystem management evaluations are not conducted, or are delayed for too long, irreversible changes may take place without detection. To avoid this problem, two periodic management evaluations are proposed for the CPNM RMP. The first is an implementation evaluation, conducted every year, which will compare expected outcomes of projects to actual results. This evaluation will ensure that monitoring results are incorporated into ongoing assessments and planning. The second is a more formal plan evaluation conducted approximately every five years, comparing the overall rate and degree of movement towards broad-scale objectives and desired future conditions.

The evaluation process will generate new information that needs to be incorporated into management actions. New information may result in any of the following:

- Conclude that management actions are moving the landscape towards the broad-scale objectives in the RMP. In this case, management actions are affirmed and may not need to be adjusted.
- Conclude that further research needs to be initiated or that actions must be adjusted to more efficiently achieve broad-scale objectives of the RMP. If new information or research demonstrates better ways to achieve plan objectives, changes in activity planning and project implementation can be made (that is, plan maintenance). NEPA analysis may be required depending upon the nature of the management changes.
- Conclude that broad-scale objectives should be altered based on new information. If the new information indicates reconsideration of RMP objectives, a plan amendment could be considered to reexamine targeted future conditions and pathways to reach those conditions. Specific processes for modification are discussed below.

The CPNM RMP will be kept up to date through approved modification procedures including plan maintenance, plan amendments, or plan revision:

- RMP maintenance is the process of further refining or documenting a previously approved decision in an RMP (43 CFR 1610.5-4). The scope of resource uses or restrictions cannot be expanded, and the terms, conditions, or decisions of the approved RMP cannot be changed. Plan maintenance is a continual process to ensure the plan reflects the current status of decision implementation and knowledge of resource conditions.
- RMP amendments are prepared to change one or more of the terms, conditions, or decisions of the approved RMP (43 CFR 1610.5-5). A RMP may be amended to consider a new proposal or action that does not conform to the RMP; implement new or revised policy that changes land use planning decisions; respond to new, intensified, or changed uses on public lands; or consider new information from adaptive management monitoring, or scientific studies that change land use planning decisions. The RMP amendment process includes the same steps as the RMP development process, but is narrower in scope (that is, focuses on one or several decisions in the RMP). The RMP amendment process may also be completed through the NEPA environmental assessment process rather than through the EIS process, depending on the level of complexity.
- An RMP revision is the preparation of a new RMP to replace an existing one (43 CFR 1610.5-6). Revisions of the RMP may be necessary to accommodate changes in resource or user needs, policies, or regulations. RMP revisions are prepared using the same procedures and documentation as for new

RMPs. The typical timeframe between comprehensive BLM RMP revisions is 15 to 20 years, unless specific issues warrant earlier action.

The appropriate type of plan modification will be determined as part of the adaptive management process by monitoring and periodic comprehensive land use plan evaluations as discussed above.

Chapter III: Area Description and Resource Values

III.1 Introduction

The Carrizo Plain is a vast, flat, and arid landscape located in the southeastern corner of California's Central Valley. It is a unique and valuable resource, offering a glimpse into the region's prehistoric past. The area is characterized by its extreme dryness, with annual rainfall averaging less than 5 inches. Despite the harsh conditions, the Carrizo Plain has been inhabited by Native Americans for thousands of years. The area is also home to a variety of rare and endangered plant and animal species. The Carrizo Plain is a truly remarkable area, and it is our duty to protect and preserve it for future generations.

Chapter III. AREA DESCRIPTION AND RESOURCE VALUES

III.2 Biological Resources (Wildlife and Vegetation)

Wildlife Resources

III.2.1 Mammals

The Carrizo Plain is home to a variety of mammals, including the Carrizo Plain shrew, the Carrizo Plain pocket mouse, and the Carrizo Plain kangaroo rat. These species are found in the area's unique and arid environment. The Carrizo Plain is also home to a variety of birds, including the Carrizo Plain sparrow, the Carrizo Plain junco, and the Carrizo Plain finch. These birds are found in the area's open and flat landscape. The Carrizo Plain is a truly remarkable area, and it is our duty to protect and preserve it for future generations.

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Chapter III. Area Description and Resource Values

III.A Introduction

The CPNM is located in California's southern Coast Ranges, to the west of the San Joaquin Valley. The CPNM is primarily within San Luis Obispo County, with the easternmost portion in Kern County. The CPNM adjoins some of the most intensively managed agricultural lands and petroleum deposits in the U.S. and is less than 100 air miles from Los Angeles. However, the area remains relatively isolated and undeveloped, and retains an intact landscape character. Prominent features include the white alkali flats of Soda Lake, vast open grasslands, and a broad plain rimmed by mountains. The plain is home to diverse communities of wildlife and plant species including several listed as threatened or endangered. The area is culturally important to Native Americans. It is traversed by the San Andreas Fault, which has carved valleys and created and moved mountains. The CPNM is surrounded by several small, unincorporated communities, with larger population centers along the U.S. 101 corridor to the west and San Joaquin Valley to the east. This chapter summarizes the physical, biological, cultural, social, and economic conditions within the CPNM and also includes a

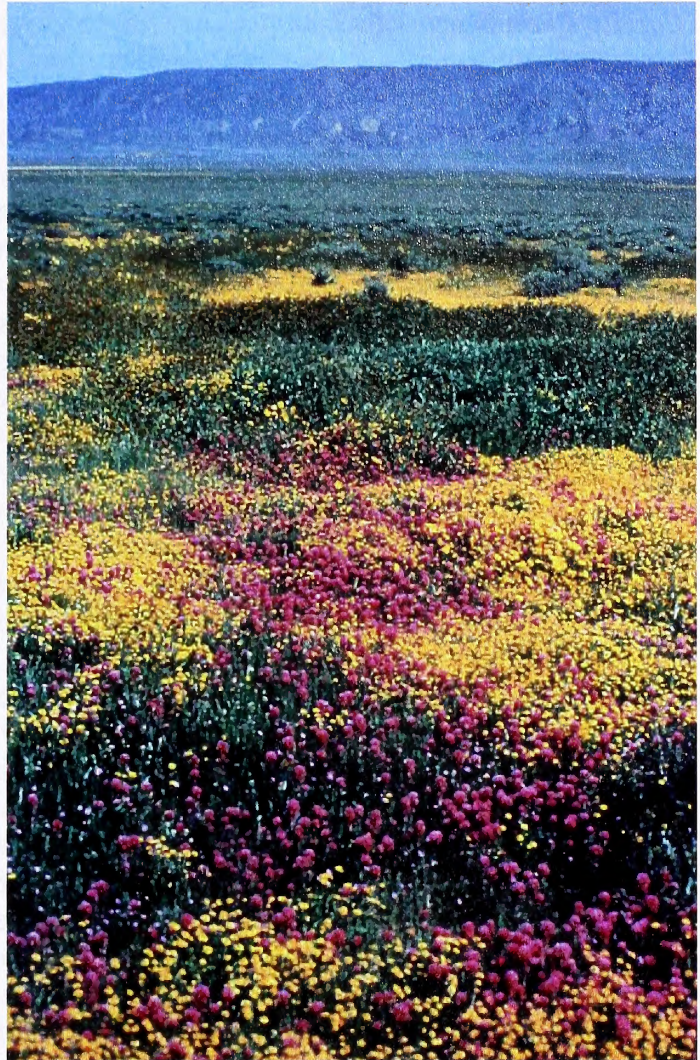


Photo 15: Spring in Carrizo (BLM File)

brief overview of relevant sections of the Monument Proclamation, laws, policies and other guidance that provide direction for area management. A more detailed description of area resources and issues is contained in the Affected Environment chapter of the Proposed RMP/Final EIS.

III.B Biological Resources (Wildlife and Vegetation)

III.B.1 Ecological Subregion Descriptions

CPNM Subregions

The CPNM has been divided into nine subregions based on geography and general ecological characteristics to provide a context for certain management prescriptions (see Map 3-1, Carrizo Plain Subregions). The subregions separate the area of the dry lakes from the surrounding valley floor, the valley from the foothills and surrounding mountains, and the Caliente Mountains into north and south sides. Further demarcation into northern and southern foothill and plain sections follows precipitation patterns. Plant community designations on the following pages are based on the existing Carrizo Plain vegetation map, which follows the classification system developed by Holland (1988). Each of these subregions is described in greater detail below.

Carrizo Plain North

The Carrizo Plain North subregion includes the area of the northern Carrizo Plain between Soda Lake and the foothills of the Caliente Range. A small portion of CDFG American unit is within this subregion. The topography is generally flat, but dissected by shallow drainage courses. Elevations range from 1,950 to 2,300 feet and soils are generally deep, sandy, and derived by erosion from the adjacent Caliente Range. The subregion receives slightly more precipitation and its vegetation is generally more lush than its southern counterparts (the Carrizo Plain Central and the Panorama Hills-Elkhorn Plain subregions). Virtually the entire area has been altered by activities associated with agriculture: over 75 percent of the subregion was previously tilled and most, if not all, grazed at one time or another. Plant communities include extensive wild oat (*Avena* spp.) dominated nonnative grassland, especially well-developed in the previously cultivated fields. In the drainage systems where slightly more water is available, interior Coast Range saltbush scrub is present.

The subregion includes foraging and fawning habitat for pronghorn as well as generalized habitat for elk, kit foxes, various bats, ground-nesting birds, and burrowing owls. It also includes a number of vernal pools that provide a home for fairy shrimp and breeding habitat for spadefoot toads.

As part of ongoing restoration efforts, about 500 acres in the subregion have been planted with native bunchgrasses, shrubs, and wildflowers to replace the nonnative grasslands with a diverse native bunchgrass and herb community, with shrub elements where appropriate. Prescribed burns have been used as a tool to prepare sites for seeding with native species. Approximately 8,000 acres are managed for the benefit of elk and pronghorn. There are about 2,000 acres of giant kangaroo rat habitat; however, most of the subregion appears to be at the northern edge of their range. The subregion includes a small portion of the central core area for the San Joaquin suite of sensitive species.

Carrizo Plain Central

The Carrizo Plain Central subregion consists of the central Carrizo Plain and the area between Soda Lake and the Panorama Hills. Almost the entire area of the CDFG Panorama unit is within this subregion. Bounded by the foothills of the Temblor and Caliente Ranges, the topography is flat to gently rolling and intersected by drainages from the surrounding hills. Elevations range from 1,950 to 2,600 feet. Overall, the area is drier than the plains in the northern portion of the Monument. Like the Carrizo Plain North, much of this subregion was previously cultivated, was subjected to livestock grazing at one time or another, and now consists predominately of nonnative grassland. Since the area receives less precipitation, the grasslands tend to be sparser and are dominated by bromes instead of wild oats. Valley saltbush scrub is found at the northern edge of the subregion along the border with the Soda Lake Sink subregion and in patches south and east of the KCL Campground. Two other shrub communities, interior Coast Range saltbush scrub and upper Sonoran subshrub scrub, enter the grasslands along drainages from the surrounding foothills. Two federally listed endangered plants, San Joaquin woolly-threads and California jewelflower, are found in this subregion. Stands of *Ephedra* are an important shrub component within this subregion.

The sparse vegetation of the Carrizo Plain Central subregion provides important core habitat for the suite of San Joaquin Valley sensitive species (blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin kit fox, and San Joaquin antelope squirrel) as well as for mountain plovers. Saltbush scrub supports the northern-most distribution of the Le Conte's thrashers on the Monument. The subregion's vernal pools are breeding habitat for spadefoot toads and support populations of fairy shrimp. Within sandy drainage bottoms are sun cups (*Camissonia* spp.), wildflowers that provide forage for the caterpillars of the endangered Kern primrose sphinx moth. The area also includes important roosting habitat for bats.

The Carrizo Plain Central subregion contains the majority of the San Joaquin Valley sensitive species core area. Approximately 35 percent of the subregion was previously tilled and is targeted for restoration with native perennial grasses, shrubs, and herbs.

Soda Lake Sink

The Soda Lake Sink subregion forms the valley center in the northern half of the Monument, a predominantly flat area with minor topographic relief provided by the drainage system, which ends at the lake, and by an ancient clay dune system. Elevations range from 1,950 to 2,000 feet. The subregion is mainly alkali playa, a system of shallow basins with characteristic white salt deposits and associated surrounding saltbush communities. In years with adequate precipitation, the lake and playas fill with water, eventually drying out as the season progresses. Usually the lake dries with the cessation of rains and the onset of summer heat, but occasionally, as with the record rainfall in 1998, standing water can persist until the following rainy season. No vegetation grows within the playas, but they are edged by valley sink scrub, which itself is surrounded by valley saltbush scrub in the slightly less-saline soils. Six rare plants are found within this subregion: Jared's peppergrass, Munz's tidy tips, Lost Hills crownscale, recurved larkspur, spiny-sealed button-celery, and Hoover's button-celery.

With sufficient rain, temporary pools fill and, depending on the salinity, support brine shrimp and/or several fairy shrimp species (longhorn fairy shrimp, vernal pool fairy shrimp, alkali fairy shrimp, and pouch-pocketed fairy shrimp). Spadefoot toads breed in the less-saline pools. Soda Lake also provides important migratory bird habitat, most notably for long billed curlews, American avocets, and black-necked stilts. Occasionally sandhill cranes, which historically fed among the surrounding grain fields, return to the lake for short periods of time. Flood-prone areas of deeply cracked brown soil provide habitat for wintering mountain plovers. The shrub areas surrounding the playas provide pronghorn fawning habitat. The area is also important habitat for a variety of shrub- and ground-nesting birds.

The subregion includes approximately 16,000 acres of pronghorn habitat.

Panorama Hills-Elkhorn Plain

The Panorama Hills-Elkhorn Plain subregion, sandwiched between the Carrizo Plain proper and the Temblor Range, includes the Panorama and Elkhorn Hills and adjoining regions. The San Andreas Fault forms the western boundary. All of the CDFG Elkhorn unit and part of the Panorama unit are within this subregion. The topography includes several broad plains within a series of ridges and intervening drainages in a northeast to southwest orientation. Elevations range from 1,950 to 3,250 feet. The southern Elkhorn Plain tends to be among the driest habitat in the Monument. Control of Russian thistle is an ongoing concern.

Much of the vegetation is nonnative grassland, shifting in the drainages and higher elevations to interior Coast Range saltbush scrub. In the area where the Elkhorn and Panorama Hills join, upper Sonoran subshrub scrub occurs. The Temblor Mountain foothills, which form the southeast border of the subregion, are a mix of interior Coast Range saltbush scrub and spiny saltbush scrub. A few small patches of juniper woodland are evident in the upper elevations of the Temblor Range and in the lower Elkhorn Hills. Although much of the grasslands are dominated by introduced species, native bunchgrasses can be found on north-facing slopes and within some shrub communities. Heavy rains in March 1991 appeared to promote saltbush establishment in the Carrizo Plain and western San Joaquin Valley. Among other areas, new populations of common saltbush (*Atriplex polycarpa*) appeared in the drainages extending into the Elkhorn Plain from the Temblor Range. Although some plants have since died out, the saltbush seems to have reestablished populations thought extirpated by the historical practice of year-round grazing. The

subregion is home to the endangered San Joaquin woolly-threads, and the rare Temblor buckwheat and forked fiddleneck.

The area is noteworthy for having the highest known density of blunt-nosed leopard lizards (Germano and Williams 2005) and among the highest density of giant kangaroo rats, and includes two large areas of core habitat. The subregion also supports other arid land species once common in the San Joaquin Valley, such as short-nosed kangaroo rat, San Joaquin kit fox, San Joaquin antelope squirrel, and mountain plover. Some areas of common saltbush and, to a lesser extent, ephedra found within this subregion provide habitat for Le Conte's thrasher.



Photo 16: Temblor Range (BLM File)

Temblor Range

The Temblor Range subregion contains the upper elevations on the eastern border of the Monument. The terrain is steep and eroded, with an aspect trending generally to the southwest. Elevations range from 1,950 feet to 4,250 feet. Overall, the area is quite dry, with only a few springs present. Vegetation is primarily upper Sonoran subshrub scrub dissected by interior Coast Range saltbush scrub in the drainages and north-facing slopes, where one encounters native bunchgrasses as well. Some of the more mesic (moist) sites on the northwest end support juniper oak cismontane woodland and cismontane juniper

woodland and scrub, and there are a few small meadows of nonnative grassland. In the southern end of the subregion, spiny saltbush scrub is present and there are patches of large Alvord oaks in some canyons. The Temblor Mountains are home to upland game species such as California quail, chukar, and mule deer.

The subregion is considered marginal habitat for kangaroo rats; however, during favorable conditions in the recent past, the species has expanded along the ridgetops and spread to the crest of the Temblor Range. It is better habitat for antelope ground squirrels and kit fox and provides important linkage between Carrizo Plain and San Joaquin Valley populations. Habitat management in this subregion is focused on preserving and restoring the Alvord oak populations, protecting the linkage between the Carrizo and the Valley, and ensuring the long-term survival of the subshrub scrub, bunchgrass, and yucca communities.

Caliente Foothills North

The Caliente Foothills North subregion lies along the northeast flanks of the Caliente Mountains, from the Monument's northern boundary, south to the KCL campground. The subregion encompasses the northeast-facing slopes of the Caliente Mountains between the Carrizo Valley floor and their upper elevations. Most of the CDFG American unit is within this subregion. The terrain is relatively gentle to steep, from 1,900 to 3,200 feet in elevation. This subregion tends to get more precipitation than many other areas of the Monument. Because of this, the vegetation is primarily *Avena* (wild oat) dominated nonnative grassland with patches of upper Sonoran subshrub scrub, interior Coast Range saltbush scrub, and Diablan sage scrub in the upper elevations and more mesic sites. Some of these shrub communities in the upper elevations areas also have scattered juniper. A small amount of juniper oak woodland is present along the border with the Caliente Mountains. In the southern portion of the subregion are stringers and

patches of valley saltbush scrub. Springs and their associated riparian vegetation can be found in many of the canyons. Areas of native bunchgrasses, primarily needle grass (*Nassella* spp.) and one-sided bluegrass (*Poa secunda* ssp. *secunda*) are encountered throughout the subregion, most commonly on north-facing slopes. Much of the lower elevation lands were previously tilled and most, if not all, of the subregion was grazed at one time or another. Rare plants associated with vertisol clay belts in the Caliente foothills include oval-leaved snapdragon, heart-leaved thornmint, and pale-yellow layia. Other rare plants in the subregion include forked fiddleneck and San Joaquin woolly-threads.

The subregion includes habitat for pronghorn foraging and fawning, for elk calving, and for upland birds, especially quail. Scattered throughout the subregion are rock outcrops that provide habitat for bats and birds and occasional temporary pools for fairy shrimp.

Caliente Foothills South

The Caliente Foothills South subregion lies along the northeast flanks of the Caliente Mountains, from the KCL campground to the Monument's southern boundary. The subregion encompasses the northeast-facing slopes of the Caliente Mountains between the Carrizo Valley floor and their upper elevations. The terrain ranges from relatively gentle to steep, from 2,100 to 3,500 feet in elevation. This subregion is drier than the Caliente Foothills North, but more mesic than the valley floor. Vegetation is mostly upper Sonoran subshrub scrub transitioning to *Bromus*-dominated nonnative grassland in the southern end of the subregion. The Sonoran scrub is often dominated by *Ephedra*. Interspersed in the northern end are pockets of interior Coast Range saltbush scrub, valley saltbush scrub, juniper woodland, and nonnative grassland. Areas of native bunchgrasses, primarily needle grass (*Nassella* spp.) and one-sided bluegrass (*P. secunda* ssp. *secunda*) are encountered throughout the subregion, most commonly on north-facing slopes. Introduced annual grasses are common and especially abundant in previously cultivated areas. Much of the lower elevation lands were previously tilled and most, if not all, of the subregion was grazed at one time or another. Rare plants associated with vertisol clay belts in the Caliente foothills include oval-leaved snapdragon, heart-leaved thornmint, and pale-yellow layia. Federally listed plants in the subregion include California jewelflower, San Joaquin woolly-threads, and the recently delisted Hoover's woolly-star.

The subregion provides a little pronghorn foraging habitat as well as some habitat for kangaroo rats and other San Joaquin sensitive species. Some of the dry washes support sun cups (*Camissonia* spp.), larval food for Kern primrose sphinx moth. Vernal pools in the subregion provide habitat for longhorn and versatile fairy shrimp and breeding sites for spadefoot toads. Sag ponds, formed by irregular ground movement associated with the San Andreas Fault, tend to have higher alkalinity and support pouch-pocketed fairy shrimp and brine shrimp. Scattered throughout the foothills are rock outcrops that provide habitat for bats and birds.

Caliente Mountains North

The Caliente Mountains North subregion contains the northeast-facing side of the Caliente Range. A small parcel of California State Schools land is within this subregion. The topography is one of relatively steep ridges and drainages, from 2,600 to 5,100 feet in elevation. This subregion generally has the highest precipitation in the Monument. Vegetation is mostly juniper oak woodland and juniper woodland, with the former better represented in the more mesic northwest end of the subregion. In addition, Diablan sage scrub is found interspersed within the woodland communities. Stands of native bunchgrasses are fairly common, especially in the more mesic sites. Several important springs and their associated vegetation are present.

Sufficient cover is available for upland birds such as California quail and chukar, and habitat is appropriate for deer and elk. Bears are also present. Nonnative wild pigs can be encountered, in higher numbers during wet years. The numerous rock outcrops and cliff faces provide habitat for raptors, other birds, and bats.

Caliente Mountains South

The Caliente Mountains South subregion contains the southwest-facing side of the Caliente Range and extends to the southern Monument boundary. The topography is one of steep ridges and drainages, from 1,650 to 5,100 feet in elevation. The region is quite arid; the vegetation a mosaic of Diablan sage scrub, upper Sonoran subshrub scrub, interior Coast Range saltbush scrub, and occasional patches of nonnative grassland. Stands of native bunchgrasses occur in some of the more mesic sites. A few springs and their associated vegetation are present and a few populations of oval-leaved snapdragon can be found in the far western portion,

Within the shrub communities are upland game species such as California quail and chukar and occasional deer are seen. The numerous rock outcrops and cliff faces provide habitat for raptors, other birds, and bats.

On the southern boundary of the subregion, the flatlands and associated canyons bordering the Cuyama Valley could be considered a separate subregion, but this area is included in this document as part of the mapped Caliente Mountains South subregion. Vegetation is primarily saltbush scrub and nonnative grassland that provides habitat for blunt-nosed leopard lizard, giant kangaroo rat, antelope squirrel, and populations of San Joaquin woolly-threads and Hoover's woolly-star.

Management concerns include yucca colonies, saltbush vegetation, springs and riparian vegetation, and biological crusts. In the lower saltbush vegetation, focus is on the two rare plants and the giant kangaroo rat, antelope squirrel, and blunt-nosed leopard lizard.

III.B.2 Wildlife

III.B.2.1 Introduction and Habitat Types

The Monument Proclamation that established the CPNM recognized its exceptional biological resources as objects to be protected and the importance of the area as a large remnant of habitat for many wildlife species endemic to the nearby San Joaquin Valley, and as a refuge for the dwindling flora and fauna of the valley. While over 90 percent of the San Joaquin Valley has been converted from grassland, scrubland, and wetland to intensive agricultural, urban, and energy/industrial land uses (USFWS 1998), the CPNM has remained largely intact as a large landscape of native wildlife. The importance of the area is highlighted by the role that the CPNM plays in the conservation and recovery of several San Joaquin Valley animals listed as threatened or endangered. The CPNM has also been designated by the National Audubon Society as a Globally Important Bird Area that is "an internationally important site that if degraded or lost would leave a lasting negative impact on bird populations."

Management of the Monument has focused on maintaining or enhancing the native plant communities to serve as high-quality wildlife habitat. Over the past 20 years, more than 40,000 acres of previously dryland farmed fields have reverted to grasslands and shrublands that now provide more functional wildlife habitats. Monitoring and research studies have been initiated to determine how the habitats should be managed to meet the Monument Proclamation and management plan goals.

The wildlife found within the Monument is characteristic of the San Joaquin Valley and inner Coast Range Mountains and includes 4 species of amphibians, 22 species of reptiles, 47 species of mammals, and 183 species of birds, of which 41 are special status species (BLM 2007a, 2007b, 2007c). The most common wildlife likely to be seen by visitors include desert cottontail, black-tailed hare, California ground squirrel, San Joaquin antelope squirrel, coyote, San Joaquin kit fox, tule elk, pronghorn, northern harrier, red-tailed hawk, American kestrel, prairie falcon, California quail, long-billed curlew, mourning dove, greater roadrunner, burrowing owl, western kingbird, horned lark, scrub jay, common raven, mountain bluebird, loggerhead shrike, lark sparrow, sage sparrow, savannah sparrow, white-crowned sparrow, western meadowlark, house finch, western fence lizard, side-blotched lizard, western whiptail, San Joaquin coachwhip, gopher snake, and western rattlesnake.

Wildlife habitats of the San Joaquin Valley recognized as objects to be protected under the Proclamation include annual grassland (92,644 acres), alkali desert scrub (52,370), Soda Lake playa (4,827 acres), and small vernal pools (<20 acres). Other wildlife habitats include mixed chaparral (58,236 acres), piñon-juniper woodland (38,509 acres), and small unmapped aquatic and riparian habitats and small patches of oak woodland (see Section III.B.3, Vegetation, for further descriptions of these habitats) (Mayer and Laudenslayer 1988).

III.B.2.2 Special Status Animals

Over 40 special status animals inhabit the CPNM. The CPNM has been identified as a core recovery area of natural lands targeted for protection in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998). Note that the term “core area” identified on Map 3-2, Special Status Animals, refers to CPNM-specific core areas identified for management under this RMP and not to the broader core recovery area identified in the San Joaquin Valley Recovery Plan referenced above. Wildlife species targeted for conservation and recovery in the Monument include blunt-nosed leopard lizard, giant kangaroo rat, San Joaquin antelope squirrel, San Joaquin kit fox, short-nosed kangaroo rat, Tulare grasshopper mouse, and San Joaquin LeConte’s thrasher. There are a variety of recovery tasks in the Recovery Plan to be implemented in the Monument. Since BLM is obligated under Section 7(a)(1) of the *Endangered Species Act* to carry out programs for the conservation of endangered species and threatened species, the recovery tasks identified for the Monument are a focus of management actions.

Giant Kangaroo Rat (*Dipodomys ingens*)

Regional Context

The giant kangaroo rat is listed as endangered by the CDFG and the USFWS (USFWS 1987); it is also recognized as an object of the Monument Proclamation. Population numbers of the giant kangaroo rat plummeted during the 20th century, mainly as a result of habitat loss as desert areas were converted to agriculture. Over 95 percent of the former range has been lost due to cultivation, overgrazing, mining operations, and invasive weeds (USFWS 1998). The CPNM provides the greatest expanse of occupied giant kangaroo rat habitat remaining within the range of this species. As such, the Monument has been identified as a critical element in the conservation and recovery of this species (USFWS 1998).

Present Condition and Trends

Populations of giant kangaroo rats have been documented to occur on over 153,000 acres from near Soda Lake to the extreme southern end of the Monument, in the foothills of the Caliente Range, throughout the Panorama Hills and Elkhorn Plain, and along the upper ridgelines of the Temblor Range (see Map 3-2, Special Status Animals). Populations are more robust and persistent in the dryer Elkhorn Plain and in the southern-central portion of the Carrizo Plain where rainfall is generally lower and where vegetative cover

is sparser than at the northern end of the Monument. Giant kangaroo rats are most abundant in the Carrizo Central and Panorama Hills-Elkhorn Plain subregions. They are found to a lesser extent in the Carrizo Plain North, Caliente Foothills North, Caliente Foothills South, and Soda Lake Sink subregions. They occasionally occur on the ridgelines of the Temblor Range. They have been observed in some of the flat-bottom arroyos at the base of the Caliente Mountains South adjacent to the floor of the Cuyama Valley.

Giant kangaroo rats are the most abundant and dominant small mammal over the Elkhorn Plain and Carrizo Plains. Giant kangaroo rat distributions expand and decline with changing weather patterns (USFWS 1998). Population monitoring data in the Carrizo Plain and Lokern Area in western Kern County indicate that populations have declined in prolonged drought periods as well as in a series of above-average rainfall years (Williams and Germano 1994; Germano and Saslaw 2007; ESRP 2005).

It appears that the Elkhorn Plain and the south-central portion of the Carrizo Plain have had the most persistent populations of giant kangaroo rats in both drought and wet periods to serve as source populations for population expansions. Some of the lower foothills of the Caliente Range may also serve this purpose.

The giant kangaroo rat is specifically identified as an object of the Proclamation and is considered a keystone species in the ecological function of the annual grassland and alkali desert scrub wildlife habitats in the Monument. As a keystone species, this animal contributes disproportionately to biotic and abiotic factors in the ecosystem (Goldingay et al. 1997). Kangaroo rats consume and distribute seeds of many plants, clip vegetation, and modify soil properties through their extensive burrowing and precinct maintenance activities (Brown and Heske 1990; Schiffman 1994). For example, several other endangered animals and plants depend on giant kangaroo rat vegetation clipping above their burrow systems, called precincts, for habitat structure, food, and cover (Goldingay et al. 1997; USFWS 1998). As a keystone species, management actions are aimed at maintaining populations of giant kangaroo rats across the landscape, where appropriate, to maintain ecological function within the natural range of variation. Thus, the distribution and abundance of giant kangaroo rats are considered to be indicators of ecosystem health and success in managing for many of the biological objects of the Proclamation. They are often a key factor in determining vegetation management objectives.

Monitoring data suggest that giant kangaroo rats have been able to successfully manipulate the amount of nonnative grass and forbs in most years to maintain their distributions and abundance across the Monument landscape. In average rainfall periods when there are ample openings in nonnative grass cover, and in low rainfall periods when little vegetation structure is produced, they are generally abundant across the landscape of the plains. In periods of prolonged drought (such as the 1989 to 2001 period), the populations decline, but there are few management options to reverse these declines. In occasional wet periods, a landscape-wide dense cover of grass has occurred that could be the cause of extensive giant kangaroo rat population declines. Such wet periods may have only occurred about six times over the past 118 years, based on Bakersfield rainfall records (NOAA 2008).

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

Regional Context

The San Joaquin kit fox is a subspecies of kit fox that inhabits much of the valley floor and foothills of both the Carrizo and Elkhorn Plains within the Monument. This species was listed by the federal government as endangered in 1967 and is included in the USFWS *Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998). The San Joaquin kit fox was listed as threatened by the State of California in 1971; it is also recognized as an object of the Monument Proclamation.



Photo 17: San Joaquin Kit Fox (BLM File)

Based on Grinnell et al. (1937), the historical range for the San Joaquin kit fox is believed to have once included nearly the entire San Joaquin Valley. Current distribution includes the southern tip of the San Joaquin Valley to Contra Costa County but the kit fox is largely absent from the east side of the San Joaquin Valley. Furthermore, agriculture throughout the San Joaquin Valley makes distribution spotty (CDFG 2008a) and has caused habitat to become highly fragmented (Cypher et al. 2005). Three core populations of foxes now exist within their remaining range. The largest of the three is found in the CPNM, making this area vital for the recovery of the species (USFWS 1998). A management plan that includes the survival of kit foxes as a management goal is an important downlisting criteria (USFWS 2007). The kit fox is considered an umbrella species (USFWS 1998) since its habitat requirements and occurrence overlaps many other imperiled San Joaquin Valley species. The USFWS and CDFG consider efforts to protect and conserve the San Joaquin kit fox to also benefit other San Joaquin Valley listed species.

Present Condition and Trends

Approximately 150,000 acres within the Monument are considered suitable habitat for the San Joaquin kit fox (see Map 3-2, Special Status Animals). The openness of the valley floor, as well as the gentle topography of nearby foothills, provides the necessary prey base and the ability to see and avoid predators such as coyotes and bobcats (Nelson 2005). Plant communities associated with kit fox habitat on the Carrizo Plain are valley sink scrub, valley saltbush scrub, upper Sonoran subshrub scrub, and nonnative grassland. The Carrizo Plain Central, Carrizo Plain North, and the Panorama Hills-Elkhorn Plain subregions contain the highest percentage of kit fox habitat in the Monument. The Soda Lake Sink is used to a lesser extent and is likely avoided because of the dense shrub cover. The lower elevation and gentle drainages of the Caliente Mountains South may provide important remnants for kit foxes living in the Cuyama Valley, but no recent observations have been recorded.

Population estimates of foxes within the Monument are not well known. Quarterly spotlighting surveys have been conducted by the CDFG since 1970 and have averaged 22 kit foxes along Elkhorn Road and 16 along Soda Lake Road. Survey numbers ranged from 4 to 66 along Elkhorn Road and from 0 to 64 along Soda Lake Road (Bidlack 2007). There has been a shift in kit fox distributions along Soda Lake Road, with fewer foxes observed in the southern portion of the survey route and a higher proportion of foxes observed in the northern half of the route. In contrast, the Elkhorn Road observations were relatively constant through the 35 years. The distributions of kit foxes were strongly correlated to the distribution of giant kangaroo rats. As kangaroo rats expanded their distributions between 2001 and 2006 by 83 percent kit fox observations also expanded with the giant kangaroo rat range. In addition, kit fox observations were higher in the middle portions of the routes than at the ends near the Monument boundary. Kit fox numbers were quite variable over time, and the populations did not correlate to rainfall or the land cover of grasslands or shrubs.

Within the Monument, the availability of large tracts of relatively natural, wild lands where rodenticides are prohibited is important for the continued survival of kit foxes. Threats to kit fox in the CPNM include natural phenomena such as drought and predators, and human-caused impacts including vehicle strikes

and shootings. Fluctuations in prey populations due to drought or other factors affect kit fox reproduction in that many pups do not survive (USFWS 1998). Natural predators include coyote (*Canis latrans*), bobcat (*Felis rufus*), red fox (*Vulpes vulpes*), golden eagle (*Aquila chrysaetos*), and other large raptors. Except for coyotes, kit foxes are a food source for these animals. Coyotes, more often than not, do not eat kit foxes but kill them because they are in direct competition for the same food sources (B. Cypher, personal communication, 2007; Nelson 2005). Red foxes are known to occur just north of the Monument and have not been considered a major threat.

Vehicle strikes occur occasionally on Soda Lake Road, the main road through the Monument that receives the highest amount of vehicle use. Strikes have occurred along paved and unpaved sections of road but foxes are especially vulnerable when dens are located close to the edge of the road (BLM staff, personal observation, 2004-2007). There is a concern that kit fox are mistaken for young coyotes and as a result, killed as varmints, though this has not been documented.

Management of prey populations and an open low grass structure of vegetation have been the primary focus of kit fox management. Management has generally been applied to reduce the amount of nonnative grass to improve conditions for prey species. Studies have found that small nocturnal mammals comprise over 30 to 50 percent of kit fox diets, with California ground squirrels, black-tailed jackrabbits, desert cottontails, ground-nesting birds, reptiles, and insects making up the remainder (White et al. 1996; White and Ralls 1993). Cypher et al. (2000) noted that food availability appears to be the primary factor influencing kit fox population dynamics. Therefore, management strategies that create more abundant food supplies would potentially benefit kit foxes. They also noted that vegetation management tools such as controlled grazing or burning might increase kangaroo rat abundance. Habitat management has aimed to create a variety of grassland and shrubland conditions that favor this wide array of species across the landscape.

Blunt-Nosed Leopard Lizard (*Gambelia sila*)

Regional Context

The blunt-nosed leopard lizard was listed as endangered by the U.S. Department of the Interior in 1967 and the State of California in 1971. This species is also included for protection under the California *Fully Protected Species Act* that prohibits the lawful take of this species.

The Monument is one of largest remaining population centers for the blunt-nosed leopard lizard and has been identified as one of five key areas for their conservation and recovery (USFWS 1998). The Elkhorn Plain may represent one of the best remaining habitats for this species when environmental conditions are favorable (Germano and Williams 2005). The Monument offers a large-scale ecosystem where many of the research and monitoring tasks identified in the Recovery Plan can be conducted.



Photo 18: Blunt-Nosed Leopard Lizard (BLM File)

Present Condition and Trends

Blunt-nosed leopard lizards are closely associated with the distributions of giant kangaroo rats due to the kangaroo rat's vegetation clearing and burrowing activities (see Map 3-2, Special Status Animals). They occupy about 87,600 acres of the Monument and are most abundant on the Elkhorn Plain, in the south-central portion of the Carrizo Plain, and in the foothills area where the vegetation structure tends to be more open with less dense and persistent grass cover. The number of blunt-nosed leopard lizards occupying a site appears to be quite variable between years and may be correlated to weather, rainfall, vegetative cover, and prey availability (such as grasshoppers, coleopteran beetles, bees, wasps, and ants) (Germano et al. 2007).

Blunt-nosed leopard lizards are specifically recognized as an object of the Proclamation and are a focus of habitat management prescriptions. The acquisition of private lands on the Carrizo and Elkhorn Plains has made substantial contributions toward the recovery of this species.



Photo 19: Antelope Ground Squirrel (BLM File)

San Joaquin Antelope Squirrel ***(*Ammospermophilus nelsoni*)***

Regional Context

The San Joaquin antelope squirrel was listed by the State of California as a threatened species in 1980 (CDFG 1980); it is also a BLM-California sensitive species and is specifically recognized as an object of the Proclamation. The CPNM is known to support two of four substantial populations of San Joaquin antelope squirrels remaining within its historic range (USFWS 1998). Both the Carrizo and Elkhorn Plains are important population centers where they are often found in association with giant kangaroo rats.

Present Condition and Trends

Antelope squirrels occur over 153,000 acres of the Monument and are most abundant in the central, eastern, and southern regions of the CPNM, with fewer observations in the northern area west of Soda Lake. They also occur at the ridgeline and slopes of the Temblor Range. San Joaquin antelope squirrels are most abundant in areas of sparse to moderate shrub cover, but may occur in shrub-free areas where giant kangaroo rat burrows are abundant or where they can easily excavate their own burrows in friable soils (USFWS 1998). Populations on the Monument have experienced fluctuations similar to those seen for giant kangaroo rats. They were commonly seen following the 1990 drought, but less abundant during the 1995 and 1998 El Niño period. Populations appear to have been more widespread and abundant since 2003. However, no Monument-wide surveys have been conducted to evaluate population trends or determine detailed distributions.

As described for the previous San Joaquin Valley species, acquisition of habitat by TNC, BLM, and CDFG have made substantial contributions to the conservation and recovery of this species. Ecological

studies of antelope squirrels were conducted at the Elkhorn Plain Ecological Reserve and showed some of the highest numbers within their range to occur there (Williams et al. 1988).

Pallid Bat (*Antrozous pallidus*), Western Mastiff Bat (*Eumops perotis*), and Other Bats

Regional Context

Population declines have resulted in 12 of the 26 species of California bats being designated as BLM-California sensitive species or California species of special concern. Four of these species (pallid bat, western mastiff bat, fringed myotis, and big free-tailed bat) have been documented in the CPNM. Three additional species (Townsend's big-eared bat, Yuma myotis, and long-eared myotis) may also occur on the CPNM. Of the 26 bat species known from California, the CPNM provides documented or potential habitat for 12 of these species (Johnston 1998, 2007; P. Kelly, California State University-Stanislaus personal communication, 2000; C. Johnson, California Department of Transportation, personal communication, 2000; D. Williams, California State University-Stanislaus, personal communication, 2002).

Present Condition and Trends

Loss of roosts and direct persecution by humans are thought to be the primary cause of bat population declines (Tuttle 1988). The presence of water also influences bat distributions. Upon emerging, most bats take a drink of fresh water from a pond, water trough, or other source of surface water, and then set off to forage. The proximity to available water and foraging areas can influence the use of roosts by bats. Known bat roosts in the CPNM include structures, rock formations, and hollow trees.

Two of the CPNM bat species, the pallid bat and the western mastiff bat, are considered imperiled or at high risk. The number of pallid bats occurring in coastal California has continued to decline substantially in recent years (Johnston 1998). Individuals and maternity colonies are sensitive to human disturbances at roost sites, and coastal populations are threatened by the loss of oaks (Johnston 1998). Other possible causes for the decline include loss of habitat, pesticides, and eviction from human-made structures.

Natural bat roosts receive little impact from visitors and are unaffected by Monument activities. However, many of the uninhabited human-made features that have provided roosting habitat for bats have been subject to deterioration, vandalism, or removal. Several structures documented to be used as bat roosts have been stabilized or are managed in a state of arrested decay to maintain bat habitat. Several of these sites are used for visitor education about bats and bat conservation. Several surveys and assessments for bats have been completed.

California Condor (*Gymnogyps californianus*)

Regional Context

The California condor was listed by the State of California as a fully protected species in 1954 and was federally listed as endangered in 1967 (USFWS 1996). Prior to their capture in 1987, foraging California condors commonly used the Carrizo Plains, Panorama Hills, and the Elkhorn Plain (USFWS 1984a). These areas were used by condors year-round with the heaviest use recorded in late winter and spring (USFWS 1996). Between 1982 and 1987, condor sightings were most common on the southern portion of the Monument, which is adjacent to the Bittercreek National Wildlife Refuge. The CPNM is recognized in the Condor Recovery Plan as a key foraging area that is fairly close to traditional nesting sites (USFWS 1996).

Present Condition and Trends

In the past, condors would routinely travel between the La Panza Range, located just north and west of the CPNM, and the Sespe Condor Sanctuary, located near Fillmore. A common flight path cuts across the Los Padres National Forest in Santa Barbara County and follows the Cuyama Valley and Caliente Range ridgeline. At the northern extreme of the Caliente Range, the path crosses over Highway 166 and continues to Freeborn Mountain and Hubbard Hills and the La Panza Range. Foraging condors have not used the Monument in recent years. The availability of large carrion such as cattle, sheep, tule elk, pronghorn, and mule deer is believed to be an important factor in future condor use of the Monument. Implementing management recommendations and strategies to minimize contaminant-related mortality and provide lead-free and pesticide-free carcasses is identified as a Priority 1 task in the Condor Recovery Plan. Priority 1 tasks are actions that must be taken to prevent extinction or to prevent the species from declining irreversibly.

Currently, the most serious sources of human-related mortality are lead poisoning, shooting, collisions with power lines, and the ingestion of small pieces of garbage. With the passage of AB 821, the *Ridley-Tree Condor Preservation Act* in August 2007, lead ammunition will be regulated within the present and historic range of the California condor, including the Monument.

As an object of the Proclamation, BLM manages the Monument to maintain unobstructed condor habitat and provide foraging areas that do not pose risks to individual birds. The USFWS still intends to utilize the CPNM as a supplemental feeding location for condors. In the future, use of the CPNM by condors may resume either as the wild condor population increases or due to use as a supplemental feeding site. Maintenance of foraging habitat and potential sources of food on the CPNM is identified as a Priority 1 task in the Condor Recovery Plan.

Condor biologists use the Elkhorn Hills to monitor the movements of radio-tagged condors. From a spur road leading off Elkhorn Hills Road, USFWS biologists are able to pick up radio signals from as far away as the Sierra foothills.

Greater Sandhill Crane (*Grus canadensis tabida*) and Lesser Sandhill Crane (*Grus canadensis canadensis*)

Regional Context

Sandhill cranes (*Grus canadensis*) are winter visitors to the Monument that have been closely associated with the occurrence of standing water in Soda Lake and the cultivation of grain crops in adjacent farm fields. The most common subspecies inhabiting the Monument are lesser sandhill cranes (*G. canadensis canadensis*) – a California state species of special concern, with 5 to 10 percent of the population estimated to be greater sandhill cranes (*G. canadensis tabida*), a California-listed threatened species (Gernon 1978). Flocks of cranes may arrive as early as October before the fall rains create standing water on the lakebed, but the largest numbers are seen after substantial rains form the shallow lake on the dry Soda Lake playa. Cranes have been observed flying between the Soda Lake habitats and the San Joaquin Valley during the winter season. The birds often depart the Soda Lake wintering range in mid March.

Present Condition and Trends

The number of sandhill cranes wintering in the Monument has been declining over the past 19 years (Audubon 2008). Crane numbers have dropped from a high of 5,768, counted during the 1986 Christmas Bird Count, to a low of 0 in the 2001 count. In the 2004 and 2005 counts, there were 46 and 12 birds, respectively. No cranes have been observed since 2005. This decline is probably due to the elimination of

40,000 acres of grain crops that were cultivated by dryland farming in the Monument prior to TNC acquisitions in 1988 and the overall decline of cultivated grain fields in California Valley and the foothills adjacent to the Monument. The decline in crane numbers has not been consistent with fall precipitation, and has occurred while the numbers of sandhill cranes counted in California during the Christmas Bird Counts has remained high (above 20,000 birds in 2001). It appears that the availability of wheat directly adjacent to Soda Lake may have been important for cranes, since use of the CPNM by cranes has declined to very low numbers without such food supplies.

Historically, the activities of sandhill cranes wintering on the Monument have centered around roosting sites in or near Soda Lake, where large flocks gathered to spend the night. Preferred sites are associated with shallow water, an open shoreline, level terrain, and isolated locations away from human disturbance (Lewis 1976). Gernon (1978) observed cranes using sink habitats adjacent to Soda Lake as alternate roosting sites. However, during very wet periods, when Soda Lake and adjacent sink habitats became too deep in water for the cranes to use, the cranes used open grassland sites with ephemeral ponds further south of Soda Lake. As water depths decreased, the sink habitat with many small sinkholes became the primary roosting site, but Soda Lake was probably still too deep to use.

The prospect of seeing sandhill cranes in the Soda Lake area attracts many bird watchers in the winter season. The boardwalk constructed on the west side of Soda Lake provides an opportunity to see these birds on the lake. The managing partners discourage human activities around other portions of the lake during the winter season, to provide secure roosting habitat. No grain crops have been planted in the Monument since the land acquisitions by the managing partners in 1987, and the amount of grain cultivation has also decreased on the adjacent private lands over the past 20 years.

Mountain Plover (*Charadrius montanus*)

Regional Context

Mountain plovers (BLM sensitive and California state species of concern) are winter visitors to the Monument from October through March, migrating from their summer breeding range in the western Great Plains and Colorado Plateau regions of New Mexico, Colorado, Wyoming, Montana, and the panhandles of Texas and Oklahoma. On their wintering grounds, they use open grasslands, which historically supported tule elk, pronghorn, and kangaroo rats. They prefer open, flat tablelands with local aridity, disturbance, or, when found in prairies, short intensively grazed grass (Knopf 1996).

On their winter ranges on the CPNM, mountain plovers prefer very open habitats created by recent fires, heavily grazed areas, and naturally unvegetated barrens (Knopf and Rupert 1995). Clipping of vegetation by extensive numbers of giant kangaroo rats across large areas also provides plover habitat in most years. Based on repeated Carrizo Plain roadside surveys, vegetative structure can greatly influence plover use and distribution; however, prey abundance is equally important but less directly influenced by vegetation management. Vegetation management decisions (such as graze or no graze, burn or no burn decisions) and various stochastic events, such as tall and thick vegetation growth after rainfall events, can influence whether a potentially suitable area is available for plover use or not. When few sites are available on the CPNM, the birds likely move to farmed fields in the San Joaquin Valley (Knopf and Ruppert 1995). Species experts are concerned about this movement since the birds are then more likely to be exposed to pesticides used in agricultural farm fields.

Present Condition and Trends

On the Monument, mountain plover population numbers are variable between years. Roadside surveys have ranged from a high of over 500 to a low of 10 detections. While habitat suitability within the

Monument may have an influence on the number of wintering plovers, it is more likely that factors such as the breeding ranges, food resources, environmental contaminants, and availability of alternate wintering areas determine the number and trends of mountain plovers on the Monument.

In dry years with little vegetative production, most of the grasslands with sparse shrub and herbaceous cover are used in the fall and winter until spring growth of annual vegetation exceeds the bird's tolerance for height and cover. In wet periods of high vegetative growth and cover, only the natural barrens or disturbed sites are used, but the barrens have been unavailable in wet years due to standing water. Foraging generally occurs in habitats with less than one inch of vegetation; bare ground, including disturbed patches on kangaroo rat precincts; sites of heavy sheep or cattle grazing; or around water facilities, dirt or gravel roads, and plowed or fallowed fields.

The maximum theoretical extent of mountain plover habitat within the Monument is approximately 69,000 acres. This habitat may be reduced depending on the density and height of residual dry matter present, which fluctuates dramatically from year to year and even within the period between October and March when mountain plovers are most likely to be found in the Monument. Plovers first arriving at the Monument in fall could find either near maximum potential habitat or very few acres, depending on the amount and height of the remaining standing vegetation. The increase in new plant growth in the late winter can eventually make suitable areas unsuitable. In addition, the brown colored playas are some of the most frequently used habitats in the CPNM, but with sufficient rainfall they become shallow lakes, unsuitable for this bare-ground plover. Occasionally, the spring green season is advanced enough and in such abundance that mountain plovers have few areas of suitable habitat prior to their normal departure date of mid March.

Western Burrowing Owl (*Athene cunicularia hypugae*)

Regional Context

In California, the burrowing owl is a state species of special concern and a BLM sensitive species. California supports one of the largest resident (year-round) and winter migrant populations of burrowing owls in the United States (Klute et al. 2003). The Carrizo Plain is one of the largest areas of undeveloped grassland habitat left for burrowing owls in California (Rosenberg et al. 1998).

Present Condition and Trends

Burrowing owls are widely distributed in the CPNM. Most nests are found on the flat plains, with the exception of a few found in low, rolling hills (Ronan 2002; Rosier et al. 2001). On the CPNM, owls use burrows created primarily by California ground squirrels. Burrowing owls prefer areas of short, sparse, and open vegetation. Rosenberg et al. (2007) found overwhelming selection for grassland rather than almost equally available scrub vegetation types. Owls also favored sites with greater numbers of large-diameter burrows and burrows near vegetation that acts as a short perch (Rosenberg et al. 2007).

The reproductive success of burrowing owls inhabiting the Monument has been associated with prey abundance. Ronan (2002) observed that when burrowing owl nests were successful on the Carrizo Plain between 1998 and 2000, productivity appeared to be positively influenced by a higher proportion of rodents in the diet, a pattern that may hold generally throughout California (Rosenberg and Haley 2004; Gervais and Anthony 2003).

Western Spadefoot Toad (*Spea hammondi*)

Regional Context

Western spadefoot toads (a state species of special concern and a BLM sensitive species) are nearly endemic to California and at one time could be found throughout the Central Valley, coastal ranges, and lowlands. It is currently extirpated from much of its former range (Stebbins 1985), and continues to be threatened by urban development and intensive agriculture (USFWS 2005a). The CPNM provides a large expanse of protected grassland habitats with seasonal ponds and vernal pools which are critical for reproduction. The western spadefoot toad co-occurs with *Branchinecta longiantenna*, a federally listed species of fairy shrimp, currently found in ponds and pools within the Monument and north of Seven Mile Road, outside the Monument boundary on private property. Pools located on private property lie within designated critical habitat for vernal pool ecosystems (see Longhorn and Vernal Pool Fairy Shrimp discussion, below). Both *B. longiantenna* and *S. hammondi* are covered in the USFWS Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005a). Because they share much of the same habitat, both are afforded protection.

Present Condition and Trends

Spadefoot toads are almost completely terrestrial except for breeding, egg laying, and larval development, all of which occur in ephemeral or temporary pools (Jennings and Hayes 1994; Morey 1998). Little is known of the terrestrial activities of adult toads, but more is known about their breeding and reproduction. Currently known breeding sites occur primarily at the northern and southern ends of the CPNM, both in and outside of the Monument boundary, on private, federal, and state lands. These breeding sites are located in the Caliente Range, its foothills, and the valley floor. There are currently no known pools that support spadefoot toads on the Elkhorn Plain or in the Temblor Range but more breeding sites are expected adjacent to Soda Lake and in additional rock outcroppings.

Adult toads have been known to breed in a variety of pool types within the Monument including vernal pools, sag ponds, roadside puddles, sandstone outcroppings, and man-made stock ponds (BLM staff, personal observation, 2003). On the northern end of the Carrizo Plain, spadefoot tadpoles have been observed in four vernal pools located just north of the Monument on private property. Adult toads have been observed near Painted Rock Ranch. Numerous pools and sag ponds are located in the southwestern half of the Carrizo Plain, all within the Monument boundary. All ponds do not support tadpoles each year that water is present, most likely due to the amount of water and/or the water chemistry of the pools. Duration of breeding ponds varies with rainfall and pool type and directly affects reproductive success (Morey 1998). From 1998 to present, spadefoot toad tadpoles have been observed in 27 different ponds and pools within and adjacent to the CPNM. During the El Niño year of 1998, a rapid increase occurred, resulting in thousands of juvenile toads across the southern end of the Monument (BLM staff, personal observation, 1998).

Kern Primrose Sphinx Moth (*Euproserpinus euterpe*)

Regional Context

The Kern primrose sphinx moth was federally listed as threatened in April 1980. In February 2002, lepidopterist Peter Jump observed several Kern primrose sphinx moths (*E. euterpe*) on the Carrizo Plain. New locations outside the Monument, in the Cuyama Valley near the town of Ventucopa, were also discovered in 2004 and 2005. Prior to these discoveries, the Kern primrose sphinx moth was known only from the Walker Basin area of Kern County. The Kern primrose sphinx moth was thought to be extinct until its rediscovery in Walker Basin in 1974 (USFWS 1984b). From 1975 to 1978, the moth was present

in low numbers and very restricted in distribution at the Walker Basin site (USFWS 1980). In 1979, many more moths were present and they ranged more widely over the Walker Basin, but were abundant only at one site. The discovery of Kern primrose sphinx moth in the CPNM and Cuyama Valley substantially extends the distribution.

Present Condition and Trends

Since the 2002 discovery, annual surveys for the Kern primrose sphinx moth have been conducted on the Carrizo Plain. These surveys provide preliminary information about the ecology and distribution of the CPNM population (Jump et al. 2006). Moths have been observed in at least five sandy washes on the western side of the Carrizo Plain. Two unconfirmed sites also occur on the Elkhorn Scarp. Adult moths were observed on the Monument in 2002, 2003, 2004, 2005, and 2007. Although moths were not observed on the Monument in 2006, they were observed in the Cuyama Valley.

BLM has funded several monitoring efforts to determine Kern primrose sphinx moth distributions and habitat relationships. Most of the moth locations are on private inholdings adjacent to BLM lands. BLM has made an effort to contact the landowners and inquire if BLM acquisition is a possibility. Several washes and arroyos supporting the Kern primrose sphinx moths have been barricaded and signed to restrict unauthorized OHV use. Livestock grazing (sheep and cattle) occurs at several of the moth locations (private and BLM). The BLM sites are monitored to prevent habitat disturbance of the occupied sites.

*Longhorn and Vernal Pool Fairy Shrimp (*Branchinecta longiantenna* and *Branchinecta lynchi*)*

Regional Context

Five species of fairy shrimp are found within the Monument: longhorn fairy shrimp (*B. longiantenna*), vernal pool fairy shrimp (*B. lynchi*), versatile fairy shrimp (*B. lindahli*), alkali fairy shrimp (*B. mackini*), pouch-pocketed fairy shrimp (*B. campestris*), and brine shrimp (*Artemia franciscana*).

The longhorn fairy shrimp is endemic to California and restricted to three general areas: the foothill grasslands near Tracy, Kesterson National Wildlife Refuge, and the Carrizo Plain (USFWS 1994; Eng et al. 1990). The species was federally listed as endangered in 1994 (USFWS 1994). The vernal pool fairy shrimp was federally listed as threatened in 1994 (USFWS 1994). At the time of listing, the vernal pool fairy shrimp was only known from California. At least two sites outside California (in Jackson County in southern Oregon) have been discovered since publication of the 1994 final rule (USFWS 2005a). The vernal pool fairy shrimp is the least observed and most restricted species within the CPNM region. This species has only been found twice in the CPNM region, in 1985 from three pools near Cambria Road (CDFG 2008b) and in 1995 off Gorman Road. Both of these locations are north of Seven Mile Road, placing them outside the Monument boundary, and located on private property. The vernal pool fairy shrimp is found relatively widely in the southern and Central Valley of California, but is generally not abundant anywhere (Eng et al. 1990). Both the longhorn fairy shrimp and the vernal pool fairy shrimp are specifically recognized as objects of the Monument Proclamation.

The alkali fairy shrimp, versatile fairy shrimp, pouch-pocketed fairy shrimp, and brine shrimp are widely distributed in the western United States and Canada. However, the only two California locations for the pouch-pocketed fairy shrimp occur at Soda Lake and at a private sag pond on the southern end of the Carrizo Plain.

Critical habitat for the longhorn fairy shrimp and vernal pool fairy shrimp occurs immediately north of the Monument boundary. The original critical habitat designation on August 6, 2003 (USFWS 2003a),

included approximately 15,549 acres of BLM land and 234 acres of CDFG land inside the Monument boundary. On August 11, 2005, USFWS revised the critical habitat boundary by excluding the portion within the Monument (USFWS 2005b). The USFWS concluded that the benefits of exclusion exceeded the benefits of inclusion (USFWS 2005b).

Present Condition and Trends

Within the vicinity of the CPNM, the longhorn fairy shrimp has been observed at 21 locations clustered at the north and south ends of the plain. The 14 northern locations occur from California Valley, south to the northern shore of Soda Lake, and along Soda Lake Road to the American Ranch cattle guard. Four of these are within the Monument boundary. The sites include small and large pools and roadside ditches. The southern cluster begins at Padrone Road and continues south to the vicinity of the Hanline Ranch. All seven of these sites are within the Monument boundary. The sites at this southern end include shallow depressions and deeper ponds.

III.B.2.3 Featured Species

In addition to the special status species listed in the previous section, BLM has specific management programs in place for raptors and three additional wildlife species: pronghorn, tule elk, and long-billed curlew. These have been termed “featured species” for the purposes of this planning effort. Pronghorn and tule elk have historical associations with the regional ecology and generate a high level of visitor interest. The Monument provides habitat important for the long-term conservation of long-billed curlew and numerous raptor species.

Pronghorn (*Antilocapra americana*)

Regional Context

Pronghorn (specifically recognized as an object of the Proclamation) were historically present in the Carrizo Plain, but were extirpated from San Luis Obispo and Kern Counties around 1910. Extensive agricultural land conversion, poaching, livestock competition, land use changes, and market hunting of pronghorn during early settlement eliminated most of the pronghorn herds in the region by the 1870s. Between 1985 and 1990, the CDFG translocated 239 animals from northeastern California back onto the Carrizo Plain and several adjacent private lands. The CPNM supports the only population of free-ranging pronghorn on public lands in the Central Coast and Central Valley regions.



Photo 20: Pronghorn Antelope (BLM File)

Present Condition and Trends

Pronghorn are commonly observed in the northern valley portion of the Monument (see Map 3-3 Pronghorn and Elk Habitat), and on adjacent private rangelands and farm fields. A separate subherd is found at the southern end of the Monument and adjacent farm fields in the Cuyama Valley.

Of the 239 animals translocated to the area, approximately 142 pronghorn were released within the CPNM (Bob Stafford, CDFG, personal communication, 2007; Longshore and Lowrey 2007). Between 1990 and 2002 the population of the herd unit experienced a steady decline from the original 142 animals to 44 animals. There has been a recent increase of the herd to 84 animals in 2007.

A study of pronghorn habitat suitability, fawn bed site selection, and food habitats was conducted in the CPNM in 2003 and 2004 (Longshore and Lowrey 2007). This study evaluated the suitability of grassland and grassland/scrub habitats occupied by pronghorn in the Monument and determined that the best available habitat in the CPNM to be of moderate quality. The study indicated that topography and distance to water indicated high quality pronghorn habitat. Overall, the study suggests that without habitat rehabilitation, the present-day CPNM may not contain enough suitable habitat to support a viable population of pronghorn antelope. Restoration of native bunchgrasses and shrubs are considered important to improve habitat suitability.

Following the translocations into the Carrizo Plain, CDFG delineated a herd management unit with a boundary of State Route 166 on the south, State Route 46 on the north, the Temblor Range on the East, and State Route 101 on the west. CDFG is managing the herd unit to double the number of translocated animals to about 500 in total, with 250 to 300 within the Monument.

Since 1998, CDFG and BLM have modified or removed over 150 miles of fence in the Monument to meet pronghorn passage standards. Fence removal/retrofit efforts have been primarily directed to areas considered the best pronghorn habitat. In addition, efforts have been made to maintain water troughs to provide water for pronghorn during the summer months (out of the livestock grazing season). Livestock grazing management prescriptions have also been modified to maintain greater vegetative cover in pronghorn fawning areas.

Tule Elk (*Cervus elaphus nanodes*)*Regional Context*

Tule elk are specifically recognized as an object of the Proclamation. Prior to European settlement in the mid 1800s, tule elk were the most abundant game animal in California (Burcham 1981) and approximately 500,000 tule elk inhabited the state (CDFG 2002). By the late 1860s, tule elk were extirpated from all but one small locale in the southern San Joaquin Valley and genetic studies indicate that fewer than 5 animals persisted (Matocq et al. 2002; Meredith et al. 2007). However, with protection of the herds from hunting and the translocation of excess animals into several suitable habitats, the populations increased. The population that currently exists on the CPNM is the result of translocations to adjacent areas in 1983 and 1985. The Monument is one of several public reserves that support tule elk in Central California, including the Tule Elk Reserve in Kern County and the San Luis National Wildlife Refuge in Merced County, both of which are confined in fenced paddocks less than 3,000 acres in size. However, the Carrizo Plain and adjacent CDFG Chimineas Ranch herd contain the largest free-ranging tule elk in the Central Coast region and this herd has the potential to be the largest tule elk herd in the state.

Present Condition and Trends

The tule elk found on the Monument are the result of a translocation of 20 animals to the Chimineas Ranch in 1983 and another 120 animals to various locations in San Luis Obispo County in 1985. Since that time, the herd has increased to a minimum of 630 in 2007 (CDFG 2007). These animals are managed as the La Panza Elk Management Unit, which ranges north from San Luis Obispo and western Kern Counties into Monterey and San Benito Counties. There are two groups of elk that use small portions of the Monument. The largest group of 165 elk is found in the American Ranch and Painted Rock areas, moving back and forth to the northern Chimineas Ranch (see Map 3-3, Pronghorn and Elk Habitat). The second group of about 75 animals ranges from Sycamore Canyon in the Los Padres National Forest to Morales Canyon on the CPNM. Approximately 2,000 acres of this area is located within the boundaries of the Monument.

Prior to 2004, the north CPNM group generally resided in the remote hilly country where they were rarely seen by visitors. In recent years, this group has ventured out onto the flatlands and lower foothills around Painted Rock and the Washburn Ranch. These elk most often use the ungrazed CDFG lands and ungrazed BLM pastures in the Monument and tend to segregate themselves from cattle when using private ranch lands (B. Stafford, CDFG, personal communication, 2007).

The south CPNM group is found in the juniper woodlands, grasslands, and scrub habitats of the southwestern foothills of the Caliente Range. They tend to move east-west to the Chimineas Ranch and lower slopes of the Cuyama Valley oak woodlands. In the Monument, they may be found on the lower ridgelines and upper reaches of Morales Canyon.

The BLM and CDFG lands of the Monument provide a large area of public lands for hunter access to the elk. Since 1993, there have been annual hunting seasons in the La Panza Management Unit with an allocation of 6 to 12 bull elk and 6 to 12 cow elk per year. Hunter success is quite variable, depending on whether the animals are found on the public lands or have moved onto the adjacent private lands where hunter access is restricted. Harvest objectives are to maintain at least 25 bulls per 100 cows. In 2001, there were 49 bulls per 100 cows and 28 calves per 100 cows (CDFG 2002). Population modeling by the CDFG for the projected harvest of 18 bull elk and 19 cow elk within the herd unit indicates that there would not be a reduction of herd size, the bull-to-cow ratio objective would be met, and the calf-to-cow ratio would increase (CDFG 2002).

Long-Billed Curlew (*Numenius americanus*)*Regional Context*

Long-billed curlews are both a shorebird and a grassland species. Curlews, on the CPNM, forage in the grasslands and roost in ponds near Soda Lake at night. In California, long-billed curlews are known to winter along the coast and in the Central Valley. They are a bird with highly migratory habits that require many interconnected stops (Sibley 2001). This suggests that a reliable protected area such as the Monument may play an important role for wintering.

Long-billed curlews are also a very popular bird for both birdwatchers and the general public who visit the Monument. This bird has been on the logo for both the Natural Area and Monument for over 10 years.

Present Condition and Trends

Long-billed curlews arrive in the Monument in the fall and leave for summer breeding ranges in the interior Great Basin in April (a few can be found in early May). Some nonbreeding birds summer on the

Central California coast. Small numbers of long-billed curlews have been observed in the CPNM during the summer (S. Fitton, BLM, personal communication, 2008; BLM staff, personal observation). Winter survey numbers for curlews in early 2006-2008 ranged from 21 to 850 birds. Roost counts for 2007 and 2008 had 679 and 763 birds, respectively. Christmas Bird Counts on the Carrizo Plain since 1983 have ranged from 3 to over 2,500 birds, with an average of 375 birds (Audubon 2008). While there is no apparent trend in the winter birds, the 1999 and 2000 counts were very low (30 and 3, respectively), and the 2004 to 2005 counts showed some rebound (58 and 155, respectively). Flocks numbering as high as 3,000 have been observed outside of counts. These numbers likely reflect a variety of factors both within the Monument and across the western populations.

Curlews are most often seen using large flat grasslands with suitable openings in shrub cover to avoid predators and obtain takeoff and landings. On breeding ranges in the Great Basin, long-billed curlews were negatively correlated with vegetation height and percent vertical coverage (Bicak et al. 1981). Very little information about curlew use of non-wetland habitats in the Central Valley has been recorded (Dugger and Dugger 2002). Long-billed curlews on the Monument have been observed foraging in habitats ranging from bare ground (including burned areas) to grasses taller than the curlews. In 2007 the Point Reyes Bird Observatory and Museum of Natural History of Los Angeles County initiated a census of long-billed curlews in the Carrizo Plain, Central Valley, and Imperial Valley to evaluate distributions and habitat use in these areas.

Raptors

Regional Context

Over 20 different species of raptors including eagles, hawks, falcons, and owls can be found within the CPNM. Some inhabit the plains and surrounding mountains year-round, while others winter here, make brief stops during spring and fall migration periods, or arrive to breed and nest in one of the varied types of habitats that make up the Monument. The Carrizo Plain has been described as an area with extremely high raptor habitat values (Olendorff et al. 1989). Some of these values include rock outcroppings, dry washes with steep, vertical banks, Soda Lake and other ephemeral ponds, and large rodent and other prey populations.

The Swainson's hawk is listed by California as a threatened species and the northern harrier, long-eared owl, short-eared owl, burrowing owl, and loggerhead shrike are listed by the state as species of special concern. With the loss of habitat occurring for many grassland species such as the ferruginous hawk and northern harrier, the CPNM becomes increasingly important for wintering and nesting.

Present Condition and Trends

The largest number of raptor species occurs during the months of October through April when the birds use the CPNM for their wintering grounds. The fewest species occur during the summer months (Fitton 1998). Common fall and winter birds include the ferruginous hawk, rough-legged hawk, merlin, and long-eared owl. Less commonly seen migrants have included the white-tailed kite, Swainson's hawk, and bald eagle. Some of the more common raptors that are found throughout the year on the CPNM are the northern harrier, red-tailed hawk, golden eagle, American kestrel, prairie falcon, great horned owl, short-eared owl, burrowing owl, and barn owl.

In general, the diversity of migratory raptor species increases in the northwest part of the Monument, with more overall species found in the foothills of the Caliente Mountains (Fitton 1998). Several species choose rock outcroppings or vertical faces in large gullies or man-made structures for nesting. The grasslands provide many food sources for raptors including passerines, giant and other species of

kangaroo rats, ground squirrels and other rodents, lagomorphs, and many reptile species. Six power lines that traverse the CPNM in varying locations are used predominantly by red-tailed hawks, ravens, and prairie falcons as nesting and roosting sites. Fences and ornamental trees also serve as perches, roosts, and nest sites. Burrows created by ground squirrels, kit fox, or badgers provide homes for burrowing owls, while areas of tall grass and shrubs serve as nest habitat for northern harrier and short-eared owls.

Two of the more well-known rock outcroppings, the Selby Rocks and Painted Rock, are monitored during the breeding and nesting season to protect nest sites from visitor impacts. Both have been nesting sites for prairie falcons, golden eagles, and several owl species. Selby Rocks are posted to remind visitors of the sensitive nature of nesting birds. Painted Rock is closed each year during the nesting season with access allowed by guided tour only. Tour guides are instructed in how to conduct tours in a minimally invasive manner that protects the nest site(s). Nest sites at other locations are recorded and monitored periodically. Though many raptor nest sites have been located since the 1980s, little is known about the nesting locations on much of the Monument, especially in the Temblor and Caliente Ranges, or how many nesting sites there are for any one species.

III.B.3 Vegetation

III.B.3.1 General Botanical Setting

The Carrizo Plain is at the interface between the Coast Range and the drier, more desert-like San Joaquin Valley. The Carrizo Plain's valley floor contains the closed-basin Soda Lake system, surrounded by alkali-tolerant shrub communities, grasslands, and herb-dominated communities now dominated by nonnative annual species. The grasslands of CPNM's higher elevations (2,300 to 3,250 feet) support a higher proportion of native perennial grasses not characteristic of the southern San Joaquin Valley floor (Wester 1981; Hamilton 1997; Holstein 2001) and include shrub and woodland communities with more overall affinity to the Coast Ranges than to the San Joaquin Valley (Holland 1988). The upper Sonoran subshrub scrub vegetation is common to both the Carrizo Plain and the San Joaquin Valley. In general, the distribution of species and natural communities within the Monument reflect the gradation of wetter to drier climate from north to south and from west to east. The northern end of the CPNM averages 10 to 12 inches of annual



Photo 21: California Poppies (BLM File)

precipitation and is dominated by annual grasses, while the southern Carrizo Plain and the Elkhorn Plain average 5 to 8 inches annual precipitation and tend to have a more open vegetation of annual plants and shrubs, a mixture of coastal, San Joaquin Valley, and Mojave Desert species. The vegetation of the northern slopes of the Temblor and Caliente Ranges, which receive more moisture than the plains, consists of abundant native perennial grasses, shrubs, and woodlands. In contrast, the extremely dry south sides of the Caliente and Temblor Ranges receive less precipitation than the plains and are characterized by more xeric (dry) shrub communities. Similar effects of north and south slopes can be seen throughout the Monument on a much smaller scale, wherever there is varied topography. This variation in plant community and topography has resulted in a species-rich flora of close to 700 species.

The native habitat on the Monument has been influenced by past human activity. Much of the valley floor was dry-farmed, primarily for grain. Grazing by cattle and sheep was widespread and not always in balance with vegetative production. Springs were altered to provide water for livestock and for human use. Some trees were cut for fence posts, and others were probably used for firewood. In other areas, particularly around homesteads, nonnative trees were planted in this largely treeless landscape. As a consequence of human activities, grazing, weeds were introduced and spread. There was also extensive poisoning of native rodents to control losses in grain fields, as well as control of predators such as coyotes and foxes and an elimination of elk and pronghorn. These activities resulted in a shift in herbivore levels that undoubtedly affected native vegetation. Changes in natural hydrologic patterns due to the construction of roads, the development of stock ponds, and soil disturbances associated with farming and livestock operations also impacted native vegetation.

Livestock grazing has also been shown to contribute to the conversion of shrublands to grasslands. During dry summers and drought years, when little annual forage is available, livestock focus on shrub species like saltbush (Twisselmann 1967). Shrub communities are especially vulnerable in areas where stock levels are not in balance with annual forage production. Livestock grazing may also benefit some shrub communities by removing fine flashy fuels (mostly nonnative annual grasses) and thus affecting ignition, spread, and fire return interval (Germano et al. 2001).

III.B.3.2 Vegetation Management

Two main issues are responsible for the large-scale vegetation management actions taken in the recent past by the Carrizo's managing partners. One is the objective to restore native vegetation in degraded areas, with the focus on previously cultivated fields. The second is the concern that if grassland vegetation gets too tall, habitat for a suite of listed and sensitive San Joaquin Valley species would be compromised. Specific management tools have been applied with the goal of increasing the amount of native plants in the vegetation and lessening the nonnative component. The primary management tool has been grazing by cattle, with lesser acreage treated by prescribed burns and/or active restoration by seeding.

Livestock grazing during the green season has been employed under the assumption that it was "an effective tool to remove standing biomass, reduce the dominance of nonnative species, and enhance the reestablishment of native species" (BLM 1996). Recent analyses indicate that, contrary to the working hypothesis, green season grazing would not be an effective tool for reducing the dominance of nonnative species and would have detrimental effects on native annual plants.

Prescribed burns have been used to remove accumulations of dead annual vegetation (primarily nonnative grasses). Active restoration has involved pretreatments by burning, followed by planting native species using tractor-driven seeding machinery. Observations by BLM personnel suggest initial success; however, it remains to be seen if seeded populations will persist. The first plantings utilized a variety of wildflowers and native bunchgrasses. More recent restoration has focused on two major bunchgrass species, one-sided bluegrass (*P. secunda* ssp. *secunda*) and nodding needlegrass (*Nassella cernua*).

III.B.3.3 Plant Communities

Nonnative Grassland

Nonnative grassland is the most abundant vegetation type on the Monument, covering extensive areas of the central valley and foothills, as well as forming understory for the scrub and woodland vegetation. Some of the grasslands in the Monument could be characterized under the Holland system as valley and foothill grassland or valley needlegrass grassland, depending on their relative proportions of the native bunchgrasses, one-sided bluegrass (*Poa secunda* ssp. *secunda*), and nodding needlegrass (*Nasella cernua*). Usually, the grassland tends to be dominated by introduced Mediterranean species, especially bromes (*Bromus* spp.), wild oats (*Avena* spp.), and filaree (*Erodium* spp.). Mustards (various genera) may also be common.

A varying percent of the Monument's valley grasslands consists of native species, depending on location, cultivation history, and precipitation patterns. Native grass species present include one-sided bluegrass (*Poa secunda* ssp. *secunda*), needlegrass (*Nasella* spp.), alkali wildrye (*Leymus triticoides*), and saltgrass (*Distichlis spicata*). The native forb component includes species such as fiddleneck (*Amsinckia* spp.), pepperweed (*Lepidium* spp.), tidy tips (*Layia* spp.), hillside daisy (*Monolopia* spp.), goldfields (*Lasthenia* spp.), popcorn flower (*Plagiobotrys* spp.), lupines (*Lupinus* spp.), clover (*Trifolium* spp.), and locoweed (*Astragalus* spp.).

Rare plants found in the Carrizo grasslands include San Joaquin woolly-threads (*Monolopia congdonii*), California jewelflower (*Caulanthus californicus*), Jared's peppergrass (*Lepidium jaredii* ssp. *jaredii*), San Joaquin bluecurls (*Trichostema ovatum*), and gypsum-loving larkspur (*Delphinium gypsophilum* ssp. *gypsophilum*).

Weedy species can be especially noticeable in some years. Prickly lettuce (*Lactuca serriola*) has formed dense stands up to six to eight feet tall in wetter years. Russian thistle (*Salsola tragus*) can infest large expanses of grassland and adjacent scrub communities in years with late rainfall, especially following a drought. Species of the native genus *Amsinckia* (fiddleneck or fireweed) were very abundant in the Carrizo valley floor during spring 2005.

Valley Sink Scrub

Valley sink scrub is restricted to the alkali flats surrounding and southeast of Soda Lake. This vegetation was once widespread in the Central Valley, but is now rare due to the alteration of natural hydrological patterns and conversion of lands to agriculture. The Monument contains one of the best and largest examples of this now rare vegetation. The community is relatively open, consisting of moderately spaced shrubs up to three feet tall with an understory primarily of native grasses and forbs. The vegetation is dominated by alkali-tolerant chenopod shrubs such as iodine bush (*Allenrolfea occidentalis*), spiny saltbush (*Atriplex spinifera*), and bush seepweed (*Suaeda moquinii*, also known as *S. fruticosa*). Alkali heath (*Frankenia salina*) and native saltgrass (*Distichlis spicata*) are both common and patches of one-sided bluegrass (*Poa secunda* ssp. *secunda*) are also present, especially near the boardwalk along upper Soda Lake. Growing interspersed with the grasses are native forbs such as goldfields (*Lasthenia* spp.), tidy tips (*Layia* spp.), and peppergrass (*Lepidium* spp.). Sensitive species found within this vegetation include Lost Hills crownscale (*Atriplex vallicola*), recurved larkspur (*Delphinium recurvatum*), Jared's peppergrass (*Lepidium. jaredii* ssp. *jaredii*), Munz's tidy tips (*Layia munzii*), and pale-yellow layia (*Layia heterotricha*). Sites with valley sink scrub are intermittently flooded and have saturated, hypersaline soils. Because of this, introduced annuals are not as common here as in other vegetation communities.

Valley Saltbush Scrub

In the Monument, the major expanse of valley saltbush scrub can be found in the central plain, where it surrounds Soda Lake and the adjacent valley sink scrub vegetation. Like the valley sink scrub, the valley saltbush scrub vegetation was once more widespread in the San Joaquin Valley, but is now much restricted and loss of this habitat continues as agriculture expands into new territories. Valley saltbush scrub soils are saline and alkaline, but not as much as those closer to Soda Lake, and they lack the surface depositions of salts. Topography ranges from relatively flat to hummocky and dissected by drainages. A few small patches of valley saltbush occur in the KCL drainage and along the south end of Soda Lake Road, but they tend not to be accompanied by the other species associated with typical valley saltbush scrub. The community structure is relatively open, consisting of moderately spaced, grayish shrubs approximately four feet tall, with an understory of grasses and forbs. Characteristic plants include spiny saltbush (*A. spinifera*), common saltbush (*A. polycarpa*), alkali heath (*F. salina*), and alkali goldenbush (*Isocoma acradenia* var. *bracteosa*). Sensitive species found within this vegetation are similar to those in valley sink scrub: Lost Hills crownscale (*A. vallicola*), recurved larkspur (*D. recurvatum*), Jared's peppergrass (*L. jaredii*), and Munz's tidy tips (*L. munzii*). In wet years, the understory can become quite dense, with the introduced prickly lettuce (*L. serriola*) forming extensive stands overtopping the native shrubs. The placement of some CPNM roads has disrupted the natural flow of water (which was sheetflow) across the landscape and now forms barriers to the spread of saltbush populations. Saltbush scrub may be particularly vulnerable to fire, especially in areas where the proliferation of nonnative annual grasses has increased fire intensity.

Spiny Saltbush Scrub

This distinctive vegetation is found from the southwestern flanks of the southern Temblor Range down into the floor of the nearby Elkhorn Plain. Spiny saltbush scrub is also found in the interior central coast, the San Joaquin Valley (now mostly lost to agriculture), and the Mojave Desert. Characterized by a strong dominance of spiny saltbush (*Atriplex spinifera*), it shares elements of the adjacent interior Coast Range saltbush scrub (dominated by *A. polycarpa*) and upper Sonoran subshrub scrub (co-dominated by a number of species). The community consists of moderately spaced shrubs with an understory generally of grasses and forbs. In some areas, especially those on the Elkhorn Plain, spiny saltbush is the only shrub species present. Currently, spiny saltbush populations are expanding from the Temblor Range's drainages down into the Elkhorn Plain; many seedlings and small plants can be found near established shrubs and population boundaries that are beyond previously recorded limits (Kakiba-Russell et al. 1991). The precipitation generated during the "March miracle" of 1991 seemed to provide optimum conditions for spiny saltbush recruitment on the Monument, although there has been subsequent dieback in some areas of apparently marginal habitat. In some years, the annual introduced Russian thistle (*Salsola tragus*) forms a conspicuous element in these valley saltbush populations and dominates the adjacent grasslands; however, the 2003 infestation of Russian thistle on the Elkhorn Plain does not appear to have depressed recent saltbush recruitment.

Upper Sonoran Subshrub Scrub

Upper Sonoran subshrub scrub is the most common shrub vegetation on the Monument. It is especially well developed on the arid, moderate to steep ridges of the southern flanks of the central Temblor Mountains and in the foothills of the southern Caliente Mountains. The community also appears in small pockets along the northern foothills of the upper Caliente Range, where it may have been more extensive prior to conversion of the area to agriculture. Upper Sonoran subshrub scrub can also be found in the interior central coast, on the margins and foothills of the San Joaquin Valley, and in the western Mojave Desert. The community consists of several species of soft-wooded, relatively low shrubs (one to four feet tall), co-dominant in a very open structure and with an understory of grasses and herbs. Characteristic

shrubs include interior goldenbush (*Ericameria linearifolia*), desert tea (*Ephedra californica*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), bladderpod (*Isomeris arborea*), Eastwoodia (*Eastwoodia elegans*), and snakeweed (*Gutierrezia californica*). Representative forbs include fiddleneck (*Amsinckia* spp.), Mojave sun cup (*Camissonia campestris*), and farewell to spring (*Clarkia cylindrica*). In addition, the upper Sonoran subshrub scrub community on the CPNM contains many rare forb species including San Joaquin woolly-threads (*M. congdonii*), California jewelflower (*C. californicus*), Hoover's woolly-star (*Eriastrum hooveri*), forked fiddleneck (*Amsinckia vernicosa* var. *furcata*), oval-leaved snapdragon (*Antirrhinum ovatum*), gypsum-loving larkspur (*D. gypsophilum* ssp. *gypsophilum*), cottony buckwheat (*Eriogonum gossypinum*), Temblor buckwheat (*E. temblorense*), stinkbells (*Fritillaria agrestis*), and San Joaquin bluecurls (*Trichostemmon ovatum*).

Interior Coast Range Saltbush Scrub

Interior Coast Range saltbush scrub can be found along the drainages of the Temblor Range, in the Elkhorn and Panorama Hills, along the San Andreas rift escarpment, in the hill north of KCL campground, and in scattered locations in the southern Caliente Range. As is the situation with the upper Sonoran subshrub scrub community, conversion of the northern Caliente foothills to cultivated fields probably eliminated stands of interior Coast Range saltbush scrub vegetation. The community, in one form or another, can be found in the drier areas and deserts of central and southern California. On the CPNM, interior Coast Range saltbush scrub is closely associated with upper Sonoran subshrub scrub. The two vegetation types are similar and share many elements; however, interior Coast Range saltbush scrub tends to be taller and denser in terms of vegetation structure. The major distinction in terms of species composition is that common saltbush (*A. polycarpa*) dominates in interior Coast Range saltbush scrub, and, in upper Sonoran subshrub scrub, several species share dominance, including interior goldenbush (*Ericameria linearifolia*). Shared characteristic shrub species include desert tea (*Ephedra californica*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), and sometimes bladderpod (*Isomeris arborea*) and snakeweed (*Gutierrezia californica*). Many of the herbs and sensitive plants in upper Sonoran subshrub scrub are also found in the interior Coast Range saltbush scrub. Two distinctive characteristic species are the locoweeds, freckled milkvetch (*Astragalus lentiginosus* var. *nigricalycis*) and Diablo locoweed (*Astragalus oxyphysus*). Understory for interior Coast Range saltbush scrub also includes grasses and forbs.

Diablan Sage Scrub

Diablan sage scrub occurs in the steep upper ridges of the Caliente Range, occupying drier sites within the juniper and juniper oak woodlands, where it often forms the understory. In the lower, drier elevations on the south side of the Caliente Range, this shrub vegetation tends to be found on the north-facing slopes. Vegetation similar to Diablan sage scrub occurs from central California to Baja California. The community is one of low shrubs, moderately spaced, with an understory composed of native forbs, native bunchgrasses such as one-sided bluegrass (*P. secunda* ssp. *secunda*), other grasses, and the introduced filaree (*Erodium cicutarium*). Species composition of the Carrizo Plain's Diablan sage scrub community is slightly different from the standard mix as reported by Holland (1988) and the intergrades with Venturan sage scrub (D. Hillyard, CDFG, personal communication, January 2008). Within the Monument, the community dominants include purple sage (*Salvia leucophylla*), interior goldenbush (*E. linearifolia*), and California buckwheat (*E. fasciculatum* var. *polifolium*). Other shrubs encountered include California sagebrush (*Artemisia californica*), golden yarrow (*Eriophyllum confertiflorum* var. *confertiflorum*), snakeweed (*G. californica*), common saltbush (*A. polycarpa*), four-winged saltbush (*A. canescens*), rubber rabbitbush (*Chrysothamnus nauseosus* ssp. *mojavensis*), deerweed (*Lotus scoparius* var. *scoparius*), and silver bush lupine (*Lupinus albifrons* var. *albifrons*). A rhizomatous yucca, our Lord's candle (*Yucca whipplei*), also occurs in this vegetation type. The specific shrub mixture varies

with changes in slope, aspect, and other environmental variables. Rare plants to be encountered in this vegetation include oval-leaved snapdragon (*A. ovatum*) and Hoover's woolly-star (*E. hooveri*).

Juniper Oak Cismontane Woodland

Juniper oak cismontane woodland is well developed on the upper elevations of the Caliente Range and can also be found in a few patches in the more mesic sites of the northern Temblor Range. The topography is moderate to steep and the community density and extent often depend on slope aspect (more robust on north-facing slopes). Juniper oak woodland occurs in upland locations from central California to the Mojave Desert and Baja California. The vegetation consists primarily of large shrub-like California juniper (*Juniperus californica*) and scrubby blue oak (*Quercus douglasii*) and/or Tucker's oak (*Q. john-tuckeri*) with an assortment of smaller shrubs such as interior goldenbush (*Ericameria linearifolia*), desert tea (*Ephedra californica*), green ephedra (*E. viridus*), California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), bigberry manzanita (*Arctostaphylos glauca*), alkali goldenbush (*Isocoma acradenia* var. *bracteosa*), yucca (*Yucca whipplei*), golden yarrow (*Eriophyllum confertifolium*), and snakeweed (*Gutierrezia californica*). In some areas of the Caliente Mountains, an occasional singleleaf piñon (*Pinus monophylla*) can be encountered within this vegetation. The sensitive species hollisteria (*Hollisteria lanata*) may also be present. Grassland elements present include introduced bromes as well as native grasses such as one-sided bluegrass (*P. secunda* ssp. *secunda*) and nodding needlegrass (*Nassella cernua*).

Cismontane Juniper Woodland and Scrub

Cismontane juniper woodland and scrub occurs in the upper elevations of the Caliente Range and in patches in the Temblor Range. In the Caliente Range, it is found adjacent to, and in slightly drier sites than, the juniper oak cismontane woodland. In the more xeric Temblor Range, the juniper woodland is less abundant and restricted to the relatively more mesic sites. Cismontane juniper woodland and scrub vegetation is essentially the same as juniper oak cismontane woodland, but without the oak element and with a greater percentage of arid-adapted shrubs. The overall distribution outside the Monument is also similar. The understory tends to consist of elements of the adjacent Diablan sage scrub.

Blue Oak Woodland and Alvord Oak Woodland

These two species are present as small populations within the Monument. Vegetation in both consists of small to large oak trees, with an understory of shrubs such as oak gooseberry (*Ribes quercetorum*), elements of the Diablan sage scrub, mesic herbs, and some weedy nonnative grassland elements. Juniper is often present or nearby. Blue oaks are encountered near the top of the Temblor Mountains and in the Caliente Mountains, where the species are present as small patches on some mesic, north-facing canyons. Blue oak woodland occurs in upland areas from northern Los Angeles County to the head of the Sacramento Valley. As a community, blue oak woodland is much better developed in the CDFG's Chimineas unit, farther north in the Caliente Mountains. Alvord oak (*Quercus x alvordiana*), a hybrid of blue and scrub oak, occurs sporadically in the upper reaches of the Temblor Mountains and as small populations in the steep canyons dissecting the south end of the Monument. Some Temblor Mountain oak populations display more blue oak characteristics and some specimens are difficult to clearly place as Alvord or blue oak. Given the ease with which blue and scrub oak hybridize, it is expected that most, if not all, of the blue oak trees in the Temblor Range contain at least some scrub oak genes. Vegetation under the Alvord oaks is sparse to nonexistent, a result of grazing by livestock. Cattle forage on oak acorns and leaves and use the trees for shade. As elsewhere in California, oak regeneration appears depressed.

Although not strictly considered to be vegetation communities, the following populations, features, and habitats are ecologically important.

Biological Soil Crusts

In the upper layers of soil, microbial activity creates a specialized microenvironment called a biological soil crust. Microorganisms that may comprise a soil crust ecosystem include visible elements such as cyanobacteria, green algae, lichens, and bryophytes, as well as less-evident fungi, bacteria, and slimemolds. Small invertebrates may also be present. The upper layers of soil are modified and stabilized by the interactions between these organisms and by their direct alteration of soil chemistry and physical structure. Soil crusts act to prevent erosion, modify water absorption and evaporation, recycle and make nutrients available, and provide microsites for seed germination and seedling establishment. Certain cyanobacteria (and lichens with those cyanobacteria as a component) are particularly important because they convert atmospheric nitrogen into a form that vascular plants can utilize (Belnap et al. 2001). Biological soil crusts are very important in maintaining soil health.

Biological soil crusts are found below or between vegetation as well as in vegetation-free areas, where they are particularly noticeable. A number of bare areas supporting crust communities are found within the Monument. The “balds,” located on ridge tops in the central Caliente foothills and among the vernal pools near the Hanline Ranch, have well-developed crust communities with cyanobacteria, lichens, and bryophytes (both mosses and liverworts). On the Cuyama side of the Caliente Range are bare south-facing ridge slopes with diverse lichen assemblages. On the more mesic north-facing slopes of these same ridges are shrub communities with a moss-dominated crust understory. Some seasonally disturbed drainages of the Caliente foothills support colonizing crust communities of early successional mosses and cyanobacteria.

Lichens and Bryophytes

Besides forming a major part of the crust biota, lichens, mosses, and liverworts are important in other Monument habitats. Springs, seeps, and seasonally mesic sites often harbor well-developed moss and liverwort communities. Bryophytes are also common on moist north-facing rocks and steep slopes. Although rock outcrops can have severe environments in terms of nutrient availability, temperature fluctuations, and moisture regime, they can support diverse assemblages of crustose lichens and xeric mosses. Good examples are the sandstone outcrops within the Caliente Mountains. Habitat for foliose and fruticose lichens occurs on the ridgeline of the Caliente Range, where moisture from clouds intersecting the ridge condenses on the scrub oaks and other shrubs. Here, many of the dead and older branches are completely covered by colorful lichens.

Vernal Pools and Other Ephemeral Aquatic Habitats

Vernal pools are small, shallow, ephemeral ponds that develop in areas of hardpan following winter rains. In the Monument, they occur on the valley floor and in depressions within the foothills of the Caliente Range. Water quality ranges from fresh to saline and alkaline, depending on the location; those near Soda Lake tend to be more saline and alkaline, while those in the southern Caliente foothills are usually of fresh water. The vernal pools on the Carrizo Plain are home to endangered fairy shrimp and aquatic insects, utilized by resident and migrating birds, and provide breeding habitat for fairy shrimp and spadefoot toads. In addition, two sensitive plant species, the spiny-sealed button-celery (*Eryngium spinosepalum*) and Hoover’s button-celery (*E. aristulatum* var. *hooveri*), have been reported from freshwater pools in the Soda Lake area.

Riparian: Springs, Seeps, and the Cuyama River

Vegetation in a specific spring area depends on the amount of water available, but can include typical riparian species such as willows (*Salix laevigata*), mule fat (*Baccharis salicifolia*), cattails (*Typha domingensis*), sedges (various *Cyperaceae*), rushes (*Juncus* spp.), common monkeyflower (*Mimulus guttatus*), willow herb (*Epilobium* spp.), and maiden-hair fern (*Adiantum jordanii*). In some riparian areas, saltgrass (*D. spicata*) is present, and one spring on the south side of the Caliente Mountains supports common reed (*Phragmites communis*). Invasive exotic weeds include saltcedar (*Tamarix ramosissima*), bull thistle (*Cirsium vulgare*), and annual beard grass (*Polypogon monspeliensis*). Some springs have been fenced to eliminate trampling by livestock and most have been altered at some time in the past to divert water for livestock. Damage by wild pigs is an ongoing problem and a few springs have been impacted by elk.

The far southwest corner of the Monument incorporates approximately 200 meters of the Cuyama River at its confluence with Cottonwood Canyon. Here, water primarily flows below surface level, unless there has been recent rainfall. In the main channel, vegetation includes willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), sedges (various *Cyperaceae*), rushes (*Juncus* spp.), and saltgrass (*Distichlis spicata*). Cottonwoods (*Populus fremontii*) are present in the Cottonwood Canyon drainage. Saltcedar (*Tamarix ramosissima*) and perennial pepperweed (*Lepidium latifolium*) are present in the Cuyama stream channel, both up and downstream from this site.

III.B.3.4 Rare Plants (Including Threatened and Endangered Species)

There are 36 rare plants known to be present or with a good chance of being present on the Monument, including 3 federally listed endangered plants: *Caulanthus californicus* (California jewelflower), *Monolopia congdonii* (San Joaquin woolly-threads), and *Eremalche parryi* var. *kernensis* (Kern mallow). The recently delisted *Eriastrum hooveri* (Hoover's woolly-star), will, according to an agreement between BLM and USFWS, continue to be treated on BLM lands as if it were still listed (USFWS 2003b). In addition to these 4 species, there are 32 other rare plants: 23 BLM sensitive plant species and 9 species on the California Native Plant Society (CNPS) (2001) watch list, 7 of which are considered as potentially rare. These additional rare plants are mostly small annual herbs. The exceptions, three larkspur species and three lilies, are small perennial herbs whose above ground parts die back each year with the onset of the dry season. A number of these rare plants occur in the alkaline communities of Soda Lake and its associated playas. Many of the remaining rare plants are found within the shrub and woodland communities in the Caliente Mountains; however, rare plant populations are spread across the Carrizo landscape. Only a small portion of the Monument has been surveyed for rare plants. See Map 3-4, Special Status Plants, for the distribution of three listed species and five other rare plants for which populations have been mapped.

III.B.3.5 Threatened and Endangered Plants***Caulanthus californicus* (California jewelflower)**

The California jewelflower is a small annual mustard now restricted to three areas: Santa Barbara Canyon near Cuyama Valley, the Carrizo Plain, and the Kreyenhagen Hills in Fresno County. Its historical distribution included the San Joaquin Valley floor and foothills, the Carrizo Plain, and Cuyama Valley – seven counties in all. Today, most populations have been eliminated from the San Joaquin Valley by agricultural and urban and industrial development (USFWS 1998). It was federally listed as endangered in 1990, and as endangered by the State of California in 1987. It is also recognized as an object of the Monument Proclamation.

In the Monument, jewelflower populations once ranged from Painted Rock to the southern end of the Carrizo Plain (Hubert and Kakiba-Russell 1991). Much of the habitat was impacted by dryland farming and grazing, and the Carrizo Plain populations were thought to be extinct (Taylor and Davilla 1986). The Carrizo Plain population in 2003 was calculated to be around 9,000 plants (BLM 2003), extending from the vicinity of KCL campground southeast to near Lawson Spring.

California jewelflower has been found in nonnative grassland, upper Sonoran subshrub scrub, and cismontane juniper woodland and scrub; and historical collections have possibly been in valley saltbush scrub plant communities (USFWS 1998). In the Carrizo Plain, the species is associated with the precincts (burrow systems) of giant kangaroo rats (Mazer and Hendrickson 1993a; Cypher 1994; USFWS 1998).

Eremalche parryi ssp. kernensis (Kern mallow)

Kern mallow is a small annual plant for which the exact definition of the species has been a matter of some disagreement. Reports, papers, and taxonomic treatments have varied in the exact description of the species, which populations should be included, and what the “real” distribution is. The online Jepson Manual treatment for Kern mallow indicates that this species occurs both in Kern and San Luis Obispo Counties (Hickman 1993). There are a number of specimens from the Carrizo that fall within this circumscription of the species. Kern mallow was federally listed as endangered under the name *Eremalche kernensis*.

Monolopia congdonii (San Joaquin woolly-threads)

San Joaquin woolly-threads is a small annual composite which historically ranged throughout the southern San Joaquin Valley, the Carrizo Plain, and the upper Cuyama Valley (Taylor 1989). Current distribution includes four metapopulations and several small isolated populations, the largest being in the Carrizo Plain (USFWS 1998). In 1993, which was a favorable year for San Joaquin woolly-threads, the occupied habitat in the CPNM totaled over 2,800 acres across the central and southern Carrizo Plain and the Elkhorn Plain (BLM 1993). San Joaquin woolly-threads were federally listed as endangered under the name *Lembertia congdonii*. It is also recognized as an object of the Monument Proclamation.

San Joaquin woolly-threads occur in nonnative grassland, valley saltbush scrub, interior Coast Range saltbush scrub, and upper Sonoran subshrub scrub (USFWS 1998). On the Monument, it occurs on silty soils derived primarily from the Saltos Shale, Santa Margarita, and Temblor geologic formations (BLM 1993). Seeds of San Joaquin woolly-threads typically germinate in early winter and plants flower between late February and early April. In years with low rainfall, few seeds will germinate (USFWS 1998). San Joaquin woolly-threads has been found in areas that were previously plowed or disturbed within the Monument but that had been rested for at least five years (BLM 1993).

Eriastrum hooveri (Hoover's woolly-star)

Hoover's woolly-star is a small annual phlox that is much more common and widespread than originally thought. The species was delisted on October 7, 2003 (Federal Register 68:57829-57837), but BLM will continue to treat it as a sensitive species per agreement with the USFWS, and conduct post-delisting monitoring for this species (USFWS 2003b).

Hoover's woolly-star populations are known from northern Santa Barbara County to central San Benito County, with more recently discovered large populations more than 140 kilometers (87 miles) to the southeast in the Mojave Desert and the Antelope Valley (USFWS 2003b). In addition, populations of this species in the Los Padres National Forest were discovered at higher elevations (2,700 to 3,000 feet) than the ones previously known (USFWS 2003b). The Monument's plants form part of the Carrizo Plain-

Elkhorn Plain-Temblor Range-Caliente Mountains-Cuyama Valley-Sierra Madre Mountains metapopulation (USFWS 1998). Within the Monument, known locations of Hoover's woolly-star occur from the middle and higher portions of the Caliente Mountains between Horse and Padrone Canyons and in the lower portions of the Caliente Mountains bordering the Carrizo Plain north of Lawson Spring (BLM 1992, 1994).

In the Monument, Hoover's woolly-star is associated with interior Coast Range saltbush scrub and upper Sonoran subshrub scrub. Elsewhere, it also occurs in valley saltbush scrub (USFWS 1998). Hoover's woolly-star is usually found in areas with little competing vegetation and is often found on previously disturbed areas such as lightly used roads, old firebreaks, and abandoned oil well pads (BLM 1994). Although this species does better in sparsely vegetated areas, it can also be found in areas of dense vegetation (E. Cypher, CDFG, personal communication, 2005). Hoover's woolly-star seed germinates from January to mid-April and the plants typically flower between March and June (USFWS 1998). As is the case with other annuals, population numbers vary widely in response to precipitation patterns.

III.B.3.6 Invasive Nonnative Species

Nonnative plants comprise approximately 15 percent of the CPNM's flora and include widespread naturalized species, California listed noxious weeds (CDFA 2007), rare adventives, and landscape ornamentals.

Much of the plain and foothill landscapes are dominated by introduced, but now naturalized, annual grasses and some forbs, sometimes referred to as the new natives (Heady 1977). These include common nonnative grasses such as soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), red brome (*B. madritensis* ssp. *rubens*), wild oat (*Avena fatua*), slender wild oat (*A. barbata*), and farmer's foxtail (*Hordeum murinum* ssp. *leporinum*). Nonnative forbs include filaree storksbill (*Erodium cicutarium*) and long-beaked storksbill (*E. botrys*). Complete control or eradication of these widespread, naturalized exotic species is unrealistic, but methods used to reduce their impact on the Monument have included mowing, controlled burns, flaming, and applied livestock grazing. Controlled burns and flaming have been shown to provide temporary control of these nonnatives, useful in restoration efforts.

Some nonnative species are targeted for complete eradication from the Monument. Founder populations of Russian knapweed (*Acroptilon repens*) and heart-podded hoary cress (*Cardaria draba*), discovered in 2001, have been treated with herbicides on an annual basis. The extents of both populations are shrinking as underground stem reserves are depleted; complete eradication of existing populations is expected within a few years. Yellow star thistle (*Centaurea solstitialis*) has been found along Soda Lake Road and near the Saucito and American Ranches. Because the seeds can persist in the soil for a period of 10 years (Callihan et al. 1993), an ongoing survey and treatment program has been underway since about 1995. Bull thistle (*Cirsium vulgare*) is known at Wells and Goat Springs, and is potentially present in other perennial drainages on the Monument. Current eradication efforts consist of annual removal by hand pulling prior to seed set. Tamarisk (*Tamarix chinensis*/*T. ramosissima*) infestations are now reduced to scattered plants in the Soda Lake area and at a few isolated seep areas. The remaining populations are targeted for elimination by cutting and stump spraying with herbicides.

Tree of heaven (*Ailanthus altissima*) is managed to maintain the cultural heritage of the planted trees, while keeping the species from spreading. Tree of heaven was planted as a shade tree near many of the old ranch houses by the previous occupants of the Carrizo Plain. Mature trees and saplings can still be found around the Traver Ranch house, the MU Ranch, the KCL campground, and other old homestead sites, as well as at private residences in inholdings and in the surrounding area.

Russian thistle (*Salsola tragus*) occurs occasionally throughout the Monument, usually limited to roadsides and disturbed areas. Wormleaf saltwort (*Salsola damascena* or *S. vermiculata*), a perennial relative of Russian thistle, is present in some of the steep canyons of the Temblors and has been the target of a long-term eradication program by the Shafter Animal and Plant Health Inspection Service station

III.C Fire and Fuels Management

Prior to the invasion of the Mediterranean grasses to the area, fire did not appear to be a frequent environmental factor in the desert-like scrub communities common in the southern Carrizo Plain. The native CPNM scrub communities include fire-sensitive, non-sprouting dominant species, especially *Atriplex* spp., that are sensitive to recurring fires. While fire may not have played a significant natural role in the native ecosystem, fire is one management tool that may be useful in restoring native vegetation through seedbed preparation and decreasing cover of nonnative species.



Photo 22: Prescribed Fire (BLM File)

The BLM Bakersfield Field Office FMP, approved in September 2004, identifies resource values and conditions pertaining to fire management in the Bakersfield Field Office planning area and recommends strategies for wildland fire suppression, prescribed fire, and non-fire fuels treatment. Classification of lands in the FMP is by FMU, which is any land management area definable by objectives, management constraints, topographic features, access, values to be protected, political boundaries, and other discernable features that set it apart from the management characteristics of an adjacent FMU. The CPNM was identified as a separate FMU in the Bakersfield Field Office FMP and classified as a special management area as its primary resource management strategy. The special management area classification recognizes the area's National Monument status and indicates that special management techniques may be required to protect objects of interest in the CPNM FMU.

The current FMP wildland fire suppression strategy is to limit individual fire size to 100 acres 80 percent of the time. Fires on the valley floor burning in grassland areas away from sensitive cultural sites and in fire intolerant shrub areas may be managed using a confine strategy, such as burning to the nearest road. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 500 acres. The FMP sets the target area burned by unplanned wildland fire per decade at 10,000 acres. The decadal target for prescribed fire is 10,000 acres. Up to 4,000 acres per decade are targeted for fuels treatment using non-fire methods, such as mowing or other mechanical treatment. No areas were identified in the CPNM for the use of wildland fire for resource benefit.

III.C.1 Wildland Fire Suppression

The entire CPNM is within the direct protection area of BLM, with the exception of small inclusions of private land in Kern County, which is a state responsibility area (see Map 3-5, Fire Protection Providers). Cooperative agreements for fire suppression exist with the surrounding county fire departments (Kern, San Luis Obispo, and Santa Barbara), the state of California, and the Forest Service. The closest BLM fire

station is the Midway Station, currently located in Taft, with a drive time of approximately 30 minutes. The California Department of Forestry and Fire Protection, which staffs a fire station in California Valley, currently provides the closest source of fire suppression resources to the CPNM. BLM meets annually with the Central Coast Operations group, consisting of representatives of all the local, state, and federal fire suppression agencies in the area, to discuss fire suppression tactics and special suppression considerations for all lands. The Central Coast Operating Plan includes a modified suppression plan for the CPNM that outlines suppression tactics to be used to minimize effects to sensitive resources. Limitations include using dozers only when necessary to protect life or property or other identified sensitive resources, minimizing new line construction and off-road travel, and restricting aerial retardant drops on rock outcrops and waterways. MIST will be utilized within the Caliente Mountain WSA and other areas having wilderness characteristics. The plan also requires that a BLM resource advisor be requested for all fires to advise suppression forces on resource issues.

There are several areas within the CPNM where fire is not desired and where mitigation and suppression are required to prevent direct threats to life or property. These areas include:

- Visitor use or administrative sites;
- Historic buildings;
- Key saltbush areas;
- Fire-sensitive archaeological sites, including, but not limited to, rock art sites; and
- Private structures or inholdings.

III.C.2 Prescribed Fire and Non-Fire Fuels Treatment

Prescribed fire may be an effective tool to reduce nonnative annual grasses, giving perennial grasses a competitive edge and allowing them to become more widely established. Some communities, such as saltbush, are not fire-tolerant and prescribed burning treatments would be designed to protect these areas. Prescribed fire is also used on an annual basis to reduce hazardous fuels around developments and along road corridors. Dead vegetation, often dominated by tumbleweeds, is piled and burned.

Approximately 350 acres are mowed each year to reduce wildfire ignition risks around developments and along main roads. Other than piling vegetation for burning, this is the only non-fire fuels treatment conducted on a regular basis.

III.D Air Quality

The majority of the CPNM is within San Luis Obispo County, with a very small portion on the eastern boundary in Kern County. San Luis Obispo County falls within the South Central Coast Air Basin, and Kern County is part of the San Joaquin Valley Air Basin. Under the stricter state (compared to federal) standard, San Luis Obispo County is considered in non-attainment for both ozone and PM_{10} . The air quality trend in San Luis Obispo County between 2003 and 2006 has been mixed, with ozone levels being reclassified from attainment to non-attainment, and particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) moving from unclassified to attainment. Currently, there are insufficient air quality monitoring data available to classify attainment status for federal standards for San Luis Obispo County for ozone, PM_{10} , and $PM_{2.5}$. Kern County is considered in non-attainment for ozone, PM_{10} , and $PM_{2.5}$ at both the federal and state levels.

Neither county regards the CPNM as a source or concentration area for air pollution, due to its extremely low population density, little industry, and few major transportation corridors. BLM does not have any ongoing operations in the CPNM that require air quality permits from the state or federal government.

The two primary unregulated sources of air pollution that can originate on public lands in the CPNM are smoke from fires and dust generated from road use, maintenance, and rehabilitation.

Prescribed fires are permitted by both the San Luis Obispo Air Pollution Control District and the San Joaquin Valley Air Pollution Control District. Under current management procedures, BLM submits a smoke management plan to the applicable air district to request a permit to conduct prescribed burns. Prescribed burning prescriptions require specific wind direction so that smoke is not funneled into the more populated California Valley area, especially when school is in session.

Dusty roads have minor localized effects on air quality since there are no asbestos-containing (ultramafic or serpentine-bearing) rock formations within the CPNM. CPNM operations are either not subject to or are currently fully compliant with all air pollution control requirements. The soil-dwelling fungus that causes valley fever is likely present in soils in the CPNM; this hazard is discussed in Section III.P, Public Safety and Emergency Services.

Occasionally, easterly winds transport pollutants into the CPNM from the San Joaquin Valley. The southern and eastern portions of the CPNM most frequently receive the heaviest accumulations.

III.E Soils

The soils of the CPNM vary widely. The presence of the San Andreas Fault and contact between the Pacific and North American plates brings together two very different source rock materials for soil formation. This geologic phenomenon provides for very complex soil types. Approximately 72 percent of the Monument soils are designated as sandy or loamy soils (coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, clay loam, sandy clay loam, and silty clay loam) with the remaining 28 percent being clay soils located on the valley floor, Elkhorn Plain, and in isolated clay belts along the Caliente Mountains to the west.

A soil survey by the Natural Resources Conservation Service (2003) identified 10 general soil map units within the CPNM that are grouped into three landscape sections: Bolson (Valley) Floor Section or Playa Bottom; Alluvial Flats and Fans, Flood Plains, and Terraces; and Hills and Mountains.

III.F Water Resources

The CPNM Proclamation includes an explicit reference to water rights:

There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

There are no known existing water right issues within the CPNM. Should any water right be requested for access/removal of existing water, BLM would coordinate with the State of California to ensure that the intent of the Monument Proclamation is met.

The majority of the CPNM watershed is an internal drainage basin that lies between the Caliente Ranges on the west and the Temblor Range to the east. These mountains join together to close the basin at the southeastern tip of the CPNM. Runoff on the southern and western portions of the Caliente Mountain Range drains into the Cuyama Valley. The far southwest corner of the Monument incorporates approximately 200 meters of the Cuyama River at its confluence with Cottonwood Canyon. Here, water primarily flows below surface level, unless there has been recent rainfall.

No perennial streams or creeks are present within the Monument. Intermittent and ephemeral streams transport winter and spring runoff to Soda Lake. Covering about 3,000 acres in the center of the valley floor, this lake and the associated San Andreas Fault are the most distinctive geographic features of the Carrizo Plain. Core samples indicate that the lake has been present for at least 16,000 years (Rhodes et al. 2005). As with other dry lake systems, the Carrizo watershed has no outlet. Winter rains falling on the surrounding plains and mountains drain into the depression in the valley center and then evaporate with the onset of summer heat. Occasionally, in years of above-average precipitation, water persists until the following rainy season. Normally, however, the dissolved salts carried from the surrounding landscape crystallize as the waters evaporate, leaving the lake bed covered with a bright white crust of mostly sulfate and carbonate salts, with less than 10 percent sodium chloride (USGS 2004). Soda Lake is downstream from the community of California Valley. The lake's water quality may be affected as development of that area continues. BLM currently has no program in place to monitor the water quality in Soda Lake or its tributaries.

The majority of the Carrizo Plain is not in a floodplain and is considered to be in Federal Emergency Management Agency Flood Zone C, an area of minimal flooding. The CPNM contains a number of intermittent and ephemeral drainages that flow during heavy rains and are classified in Flood Zone A, areas that are within the 100-year floodplain. These areas have been designated as no-development zones.

Natural springs are common on the Caliente Mountains, but few springs are present on the Temblor Range. Inventory records show approximately 40 springs within the CPNM, with the majority located in the Caliente Mountains. Of these, 11 are recorded as public water reserves and are on file at the Bakersfield Field Office. Fifteen springs have been developed for livestock use (stockponds are associated with some), and they are also available for wildlife. Analysis of springs in the Wells Ranch area and the Caliente Mountains indicated most had very hard alkaline water. Levels of nitrates, sulfates, iron, fluoride, sodium, and total dissolved solids were above recommended levels in one or more springs (BLM 1982). The number of seeps is uncertain, many of which appear to form in response to the year's precipitation.

III.G Wild and Scenic Rivers

There are no existing wild and scenic river designations within the Monument. The Soda Lake watershed was analyzed for eligibility and suitability in the 1997 Caliente RMP and found not to be eligible for wild and scenic river designation (BLM 1997). The following geologic features/watersheds within the CPNM were assessed in this RMP to determine their eligibility and suitability for consideration under the *Wild and Scenic Rivers Act*: Wallace Creek, Cuyama River, and Abbott Canyon. They were determined to be not eligible.

III.H Climate

III.H.1 Local Climate

The CPNM has a Mediterranean climate, with warm, dry summers and cool, wet winters. Most precipitation occurs between November and April, primarily as rain. However, occasionally snow falls, usually in the mountains, but occasionally on the valley floor. Within an individual year, temperature and the amount of precipitation vary from north to south and by elevation. Precipitation patterns are dependent on storm direction and the interception of clouds by local topography. Overall, the Temblor Range is drier than the Caliente Mountains since storms usually intercept the Caliente Mountains first. Judging from vegetation response, precipitation on the Carrizo Plain appears to be very patchy. Although the north is generally wetter, in the drought year 2007, the southern end of the CPNM received more

precipitation than the northern parts. Temperature patterns follow a typical elevation gradient and the valley floor tends to be warmer than the surrounding mountains.

Some idea of the climate on the Monument can be derived from the weather station located south of the Washburn Ranch. This station is part of the Western Regional Climate Center's Remote Automated Weather Station system and has operated for the last 15 years (Western Regional Climate Center 2007). Average temperatures in the summer range in degrees Fahrenheit (°F) from the low 50s at night to the upper 90s during the day. Daytime temperatures often exceed 100 °F, with a record high of 115 °F. Average winter temperatures range from highs in the mid 60s to lows in the mid 30s, with a record low of 0 °F.

At the weather station, precipitation averages about 10 inches per year, ranging from a low of 3.5 inches during the 2006-2007 season to 22.9 inches during the El Niño event in 1997-1998. The driest areas on the Monument appear to receive much less rainfall, but this has not been documented with weather station data. Precipitation maps show average rainfall between 8 to 12 inches for the valley floor. Winds are generally from the south or southeast, averaging 5 mph in the morning, increasing to 10 mph by late afternoon, and dropping back down at sunset.

Precipitation has a major influence on the CPNM's ecology, and management must respond to this variation when addressing important issues such as the quality of endangered species habitat, the success of restoration activities, the amount of recreational use, and whether sufficient forage is available for livestock.

III.H.2 Climate Change in the Action Area

Global climate change presents a challenge in describing the affected environment in that it adds a dynamic variable into describing baseline conditions for analysis. Climate change models are in their infancy regarding prediction of local changes so make detailed predictions that relate to site-specific planning analysis difficult. This section describes trends that can be expected in resource conditions within the CPNM based on current models.

Climate change refers to any significant change in measures of climate (for example, temperature or precipitation) lasting for an extended period of time (decades or longer). Climate change may result from natural processes, such as changes in the sun's intensity; natural processes within the climate system (such as changes in ocean circulation); human activities that change the atmosphere's composition (such as burning fossil fuels) and the land surface (such as urbanization) (IPCC 2007).

The Intergovernmental Panel on Climate Change reports that the southwestern United States is likely to become hotter and drier (Christensen et al. 2007). Analysis using a Regional Climate Model (RCM), shown to have good predictive value for California, also indicates that the Monument is likely to be hotter and drier in the future (Kueppers et al. 2005). The California Energy Commission (2005), using older analyses, also predicted increased temperatures, but precipitation trends were unclear. In the Carrizo Plain of California, climate change may result in warmer, drier conditions, and potentially more extreme weather events.

Drier conditions for the CPNM mean that, overall, there would be less vegetative growth. A change in vegetation zones is also expected. Oak and juniper woodlands would tend to shift to scrublands, scrublands to grasslands, and grasslands to desert-like habitat with significant portions of bare soils or, hopefully, biological crusts. Woodlands may be lost altogether from the Monument (Kueppers et al. 2005). With a slight drying, the wild oat grasslands in the northern part of the Monument would be expected to shift to brome-dominated grasslands. The conversion of grasslands to desert may be accelerated if winds

erode unprotected soils exposed during droughts. As the general area becomes drier, plant communities and animal guilds are expected to migrate northward or upward in elevation, at least those species that can. Depending on the strength and rapidity of the change, some elements of the flora may disappear. As precipitation levels and recharge decline, some springs would dry up, while others would diminish in flow.

The amount and persistence of vegetation is expected to change. There would be less thatch generated, but, because winter moisture levels would be lower, less thatch would decompose. How this would affect the total amount of persistent biomass is unclear and would depend on the amount and pattern of precipitation as well as on the activities of kangaroo rats and other herbivores. With less precipitation, there would be less annual production and, overall, less food and water resources for animals. Less vegetative growth and a corresponding decrease in seed production are expected to depress population size of herbivorous and granivorous species such as kangaroo rats, rabbits, pronghorn, ants, and grasshoppers. Carnivores that prey on these primary consumers would be similarly affected.

With a drier climate, there should be more drought years, more years where the introduced annual grasses do poorly, and more years where the grassland vegetation is dominated by native drought-adapted species with long-lived seeds. However, there may be an invasion of weedy exotic species now prevalent in southern California deserts such as *Brassica tournefortii* (Saharan mustard) and *Schismus* spp. (Mediterranean grass). With fewer wet years, the grassland vegetation should remain at a lower, more open structure, thought to be optimum for the San Joaquin Valley species (kangaroo rat, antelope ground squirrel, blunt-nosed leopard lizard, and horned lizard) and thus fewer years where vegetation management may need to be applied in the core areas. Overall, population levels of these species are expected to reflect the benefits associated with a more open habitat versus the liabilities of increased droughts and an overall decrease in food and water resources.

Certain species such as spadefoot toads are well adapted to arid climates; however, it is unclear how they would be affected. Reduced reproductive success and some population declines to amphibian populations have been linked to climate change but most effects are expected to occur in montane species (Semlitsch 2000). Specific changes to the region may result in fewer years that pools receive enough water and retain it long enough for spadefoot toad larvae to be able to metamorphose. Effects to insect populations may result in less fat stores in adults prior to dormancy, thus affecting reproductive success or survival. Juvenile toads may not be as fit when leaving the pool with a shorter hydroperiod and may be less likely to survive longer periods of drought as well.

Other vernal pool adapted species, such as fairy shrimp, may be affected similarly to spadefoot toads. Fairy shrimp cysts are adapted to withstand long periods of drought. Species that depend on the waters of Soda Lake, such as greater and lesser sandhill cranes, would be affected negatively and may stop using the Monument altogether.

Many climate change models also predict infrequent but strong storm activity. This would increase the susceptibility of soils to erosion. Drier soils are more susceptible to wind erosion, and drier conditions on the CPNM are known to promote a lower density of vegetative cover and root mass that would otherwise help hold soils against wind and water erosion. Strong winds and rainstorms could then have severe erosive effects.

The hotter, drier conditions predicted as a result of climate change in the foreseeable future may cause springs to dry or become ephemeral instead of perennial; Soda Lake to evaporate more rapidly, with the unique chemical properties of its water becoming more concentrated; and groundwater levels to drop as recharge from precipitation declines.

In summary, the body of information and predictive models for climate change is in its infancy regarding prediction of site-specific impacts to areas such as the Carrizo, and the plan assumes that knowledge will advance quickly with the current emphasis on climate research and model development. Where appropriate, studies would include components to assess the impacts of changing climate. In the event that climate change made achievement of RMP objectives themselves infeasible, the plan would need to be amended accordingly.

III.I Geology and Paleontology

III.I.1 Regional Topography

The core of the CPNM encompasses two plains: the Elkhorn and the Carrizo. The Elkhorn Plain, nearly 20 miles long and 2 miles wide, lies at the western base of the Temblor Range. Elevation ranges from 2,300 feet at the southern end and gently rises to 2,500 feet toward the north where it gradually terminates with its convergence with the Temblor Range and the San Andreas Fault. Movements of the San Andreas Fault formed the Elkhorn and Panorama Hills that separate the Elkhorn Plain from the Carrizo Plain. The Carrizo Plain, located west of the San Andreas Fault, extends to the eastern base of the Caliente Range. It occupies the central portion of the Monument and is a high-elevation internal drainage basin. The valley floor is roughly 50 miles long and 6 miles wide with an average altitude of 2,000 feet. The Caliente Range, rising to 5,106 feet, is a prominent backdrop to the west while the Temblor Range to the east rises to 4,332 feet. The southern end of the Caliente Range bends east to parallel the Transverse Ranges geomorphic province. Painted Rock, one of the most widely known landmarks within the Monument, is an isolated monolithic outcrop consisting of cemented Miocene marine sandstone of the Painted Rock member of the Vaqueros formation. Southwest of the Caliente Range, the Cuyama Valley is deeply set between the Caliente Mountains and the Sierra Madre Mountains. This valley is approximately 40 miles long and 6 miles wide. The San Emigdio Mountains trend southeastward toward Mount Pinos, part of the Transverse Ranges. East of the Temblor Mountains are a series of more or less distinct foothills leading toward the San Joaquin Valley. The community of California Valley is located immediately north of the Monument and is bordered to the west by Freeborn Mountain and the La Panza Range.

III.I.2 Geology

The geology of the Monument is the product of millions of years of erosion, sediment deposition, faulting, volcanism, and uplift. From a geological perspective, the mountains and valleys are relatively young. Most of the sediments that consolidated to form the rocks were deposited well after the extinction of the dinosaurs.

Marine sedimentary rock predominates in both the Caliente and Temblor Ranges. This sedimentary rock has both an inorganic and an organic origin. Inorganic sedimentary rock includes sandstone, clay-shale, and conglomerate containing boulders and cobbles. Sedimentary rock of an organic origin includes shale composed of the remains of microscopic plants and animals with a varying component of clay. There are also some organic limestones in the Santa Margarita formation on the west side of the San Andreas Fault. Additionally, sandstones, shales, and conglomerates of marine and non-marine origin are interlayered with volcanic flows in the Caliente Range (Carter 1985; Dibblee 1962, 1973a, 1973b; Dougherty 1940; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

About nine million years ago, the granitic northern Gabilan Range lay directly west of the present-day southern Temblor Range. Boulders, cobbles, and coarse sand eroded from this old granite block and were deposited in the area of the Elkhorn Plain. These deposits are important for understanding the history of the San Andreas Fault. Movement on the San Andreas Fault has since displaced the northern Gabilan Range 120 miles north near Hollister. This sedimentary rock is exposed in the vicinity of Cochora Ranch

in the Temblor Range and is known as the Santa Margarita formation. Several endangered and threatened plant species are found on soil derived from this formation (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

The San Andreas Fault, over 625 miles long, traverses the Monument from north to south near the western base of the Temblor Range. The surface trace of the fault is displayed by creek bed offsets and fault scarps, which are particularly well-preserved in the Carrizo Plain. In part because of the preservation of these physical features, there has been considerable academic research of the fault.

III.1.3 Paleontology

The Monument is distinguished for its world-class fossil assemblages (paleontology) and well-exposed rock outcrops (stratigraphy). Several rock formations were first recognized and defined within the Monument. Present within the Monument are the "type locale" (site of the first definitive published description) of the Pattiway and Simmler formations, the Saltos Shale and White Rock Bluff members of the Miocene Monterey formation, the Soda Lake Shale and Painted Rock members of the Vaqueros formation, and the Paso Robles, Caliente, and Morales formations. These locations will be of continuing academic interest (Carter 1985; Dibblee 1962, 1973a, 1973b; Dougherty 1940; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).



Photo 23: San Andreas Fault (BLM File)

In the Caliente Range, the Caliente formation contains diverse terrestrial fossil remains interfingering with fossil-bearing marine sedimentary rocks. The formation records continuous deposition during the Miocene Epoch (from 13 million to 25 million years before present) and contains the original type locale for an early horse species. In addition, the Caliente and Painted Rock formations contain significant vertebrate fossil assemblages that include ancient varieties of dog, wolf, cat, mouse, rat, and other rodents (Dibblee 1962).

In the Temblor Range, there are a series of Miocene and Pliocene marine sediments that locally contain both vertebrate and invertebrate fossils (Carter 1985; Dibblee 1962, 1973a, 1973b; Ryder and Thompson 1989; Vedder 1970; Vedder and Repenning 1975).

There have been a series of geological mapping surveys conducted in the Monument that identify the potential for paleontological resources in specific formations within the Caliente and Temblor ranges. Both invertebrate and vertebrate fossils occur in these geologic formations. Soda Lake was once much larger than it is at present, and the Pleistocene sediments around this Ice Age lake have potential for significant vertebrate and invertebrate paleontological discoveries (Dibblee 1973b).

III.J Cultural Resources

Cultural resources, including both prehistoric and historic resources, represent a continuum of events from the earliest evidence of humans on the Carrizo Plain through the historic period. Recent archaeological inventory and assessment of cultural resources in the Monument by David Whitley (Whitley et al. 2004) indicates the Native American population was well-established on the Plain from 4,000 to 800 years ago. Whitley's archaeological investigations also suggest the Paleo-Indian may have initially used the Carrizo Plain approximately 9,000 to 10,000 years ago. In the geographic region encompassing the Monument, human presence begins 12,000 to 8,000 years ago with the early cultures in the nearby San Joaquin Valley (Moratto 1984).

Significant cultural resources in the Monument include both prehistoric and historic sites dispersed primarily along the southwestern margin of the Carrizo Plain. Although vandalized in past years, Painted Rock is recognized internationally through conservation groups such as the Getty Conservation Institute, who conducted studies at the site (Thorn 1991). Campbell Grant, a recognized writer on Native American rock art, stated that Painted Rock once exhibited "the finest of known...pictographs" in the United States (Johnson 1985). Grant (1978) further states that Chumash rock art certainly reached its highest development on the Carrizo Plain.

III.J.1 Prehistoric Resources

Of the 181 cultural resource sites recorded in the Monument, 132 of these sites are prehistoric, 41 are historic, and 8 are multi-component sites consisting of historic and prehistoric elements.

Evidence of archaeological resources associated with American Indian settlement, occupation, trade, and special activities in the Monument attest to cultural and traditional values associated with the Carrizo Plain landscape. There were 24 archaeological sites, including Painted Rock, listed in the NRHP in 2001, as these cultural properties possess important information about the prehistory and artistic expression of the native peoples that inhabited the Carrizo Plain (Whitley 2001). In 2007, BLM, in collaboration with Whitley and the National Park Service, nominated 90 prehistoric cultural resource sites to the NRHP as eligible cultural properties for inclusion as a National Historic Landmark.

Cultural resource inventories completed on public and nonfederal lands in the Monument to date encompass nearly 9.7 percent of the 250,000 acres, or about 24,288 acres. Of the 132 known prehistoric sites in the Monument, common site types include rock art, most frequently in the form of pictographs; special activity areas for community and family events; rock configurations and shelters; stone flake scatters associated with the manufacture of lithic tools; camps for short- and long-term habitation; rock quarries for procurement and use of raw materials; and plant processing areas such as bedrock mortar and milling stations. An additional eight archaeological sites are multi-component, consisting of both prehistoric and historic elements. These resources and their distribution patterns suggest both seasonal and year-long occupation. Of the cultural resources recorded in the Monument, 72.9 percent are prehistoric and 4.4 percent are multi-component.

Painted Rock is the most visited archaeological site in the Monument. Painted Rock is currently managed as a point of public visitation and protection of its traditional Native American values. The Sulphur Spring archaeological site is managed for the purposes of protection and long-term conservation.

III.J.2 Native American and Ethnographic Resources

Native Americans currently do not live on private land within the Monument. However, there are Native Americans living in the adjacent community of California Valley (located north of the Monument) and to



Photo 24: Elders Viewing Painted Rock Sign (BLM File)

the east of the Monument. The Chumash, Yokuts, and Salinan people use areas in the CPNM today for traditional uses such as plant gathering and conducting ceremonial activities at Painted Rock. Under a charter agreement initiated in 1997 between BLM and representatives of the three aforementioned native peoples, a Native American Advisory Committee was established for the Carrizo Plain. This Advisory Committee actively participates in planning and project activities with the managing partners in the CPNM. The Advisory Committee was formed to encourage participation of both the federal tribes and the non-federally recognized Native Americans having ancestral cultural ties to the lands in the Monument.

BLM's California State Director and the U.S. Department of Agriculture Forest Service Pacific Southwest Region established a new policy in 2006 in coordination with the federal tribes and non-federally recognized Native Americans in California. The new policy ensures traditional native practitioners will have access to plants and that such plants are managed in a manner that promotes ecosystem health for lands managed by BLM and the Forest Service. The policy places emphasis on local collaboration, implementation of actions, and means to resolves issues. It also encourages planning to address traditional native gathering interests and to support practitioners in gathering culturally utilized plants for personal, community, or other non-commercial traditional use on lands managed by BLM and the Forest Service.

BLM continues coordination with the Native Americans with cultural ties to the land in the Monument and their mutual interest in the recovery of native plants in the CPNM. BLM encourages the traditional use of the native plants that are not protected and supports the annual ceremonial gatherings held at Painted Rock. BLM's efforts to implement the 2006 policy concerning native plants is incorporated in this plan to ensure traditional native practitioners have access to traditional plants of their interest and that these plant areas are managed in a manner that promotes ecosystem health for lands in the CPNM.

III.J.3 Historic Resources

The El Saucito Ranch house is the only standing house in the Monument representative of the pioneer period. The house remained mostly occupied throughout its history with only brief periods of vacancy. Although the house changed ownership a number of times, the last time the house was owner-occupied was in 1966. In the years that followed, the ranch house was used by property caretakers or intermittently leased to local ranchers until the ranch was vacated in 1984. Over the history of the house, there were a number of modifications including the addition and removal of rooms. Although alterations were made to windows, doors, and the interior of the house over the years, the original two-story



Photo 25: El Saucito Ranch House (BLM File)

redwood house structure remains intact. Ranchers today use the corral at El Saucito to separate cattle and provide necessary doctoring and other needs prior to transporting the cattle to other locations. The ranch house property was transferred from private to federal ownership in 1997.

The exploitation of sodium sulfate and phosphate on Soda Lake during the 1890s is evident today by the remaining foundations and earthen berm where the narrow gauge rail system once transported materials from Soda Lake to a connecting point at State Highway 58.

The Caliente Mountain WWII Lookout Tower is located on state school land within the Monument, and is surrounded by the Caliente Mountain WSA. This significant historic cultural property has not been maintained over the years and would need to be stabilized in the near future to prevent the wooden tower from falling to the ground. Considering there are few WWII towers remaining standing in California, this historic site represents an important part of California's heritage and its association in protecting the United States during WWII.

Components of the historic Washburn Ranch and Selby Cow Camp were found eligible for inclusion in the NRHP in 1992. Selby Cow Camp barn was stabilized and partially restored in the latter part of 2007. The Washburn Ranch continues to serve as an important historic point of interest and administrative center for BLM and the CPNM partners. The Washburn Ranch transferred from private to federal ownership in 1988.

The most common historic resources encountered in the Monument include ranch buildings, structures, or features associated with sheep and cattle livestock operations and dryland farming. To a much lesser degree, features associated with mining of sodium sulfate, phosphate, and gypsum are found in the Monument. The distribution of historic site types in the CPNM demonstrates the dominant role ranching and dryland farming played in the regional history. Of the 181 cultural resource sites recorded in the Monument, 41 of these sites are historic and 8 are multi-component consisting of both historic and prehistoric elements. The 41 sites, or approximately 22.7 percent of the recorded sites in the Monument, are representative of the historic period. The 8 multi-component sites represent 4.4 percent of the cultural resource baseline.

III.J.4 Carrizo Plain Rock Art Discontiguous District

Protection and preservation measures for archaeological sites in the Carrizo Plain Rock Art Discontiguous District (a three-component historic district listed on the NRHP) were initiated when the Painted Rock complex of sites was transferred to federal ownership in 1989. For an overview of the district's locations, refer to Map 3-6, National Register of Historic Places. The north-south road to Painted Rock was closed, a fence was installed, and grazing was discontinued in the Painted Rock pasture to protect a number of archaeological sites. Shooting was also banned in the same pasture for protection of the public and the rock art paintings. The road on the eastern boundary (Selby-Caliente Road) of the Painted Rock pasture was rerouted to avoid any further impact to cultural resources that were bisected by an existing roadbed prior to federal ownership. The Painted Rock Interpretive Trail and vehicle parking area, located less than 0.75 mile from Painted Rock, were developed to provide site protection by replacing vehicle access with pedestrian access to the site. Painted Rock and other cultural sites in the Rock Art Historic District continue to be monitored regularly to identify and resolve any problems that may threaten them. Painted Rock is closed to public access during the summer solstice ceremony to allow Native American religious rites.

Natural forces such as wind and water erosion, bird excretions, rock exfoliation, dust particulates, and bee hive construction are a significant threat to rock art preservation in the Monument. It should be noted that greater than 99 percent of the human impacts to Painted Rock occurred when the site was in private

ownership. An initial effort for rock art conservation at Painted Rock was implemented by the Getty Conservation Institute in 1991 in concert with BLM.

One of the most effective protective measures for cultural resources implemented in 1987 was the closure of the Painted Rock pasture to livestock use. This action alone excluded cattle from grazing on 15 cultural properties in the Rock Art Historic District. Otherwise, cattle could continue to trample cultural midden constituents and disturb rock art by rubbing against the painted surfaces. This action has not totally excluded cattle from getting into the pasture. Although infrequent, over the recent years, cattle have been able to get past the fences on occasion.

For years the Saucito Rocks archaeological site, while in private ownership, was open for ranching, agricultural use, and for oil well drilling atop the prehistoric site. After this site transferred from private to federal ownership in 1990, BLM closed vehicle administrative access to components of the site.

The Sulphur Spring archaeological site was previously closed to vehicle and pedestrian visitation as an emergency action shortly after the property was transferred from private to federal ownership in 1988. The site was subsequently identified as closed in the Carrizo Plain Natural Area Management Plan (BLM 1996). The site was threatened by potential impacts caused by visitors coming into physical contact with the friable rock surface at this extremely fragile rock art site.

III.J.5 Additional Sites with National Register Eligibility

BLM is nominating 90 prehistoric cultural resource sites to the NRHP as cultural properties eligible for inclusion as a National Historic Landmark in 2007 (Whitley and Loubser 2003; Whitley et al. 2004). Currently, review of the nomination has been completed by the SHPO, the National Park Service, BLM's Deputy Historic Preservation Officer, and peer reviewers at the University California-Los Angeles and the Santa Barbara Museum of Natural History. The nomination package has been forwarded to the National Park Service and BLM's national office in Washington, DC for final review and approval.

BLM previously assigned "use categories" to several individual cultural properties in the Monument. It should be noted that the California SHPO and BLM have agreed to not assign use categories to cultural sites until an assessment of site eligibility and the potential effects the specific use category might have on the property has been determined. As cultural properties are evaluated for their appropriate use subsequent to this plan (for example, scientific, conservation for future use, traditional, public, experimental, or discharged from management), specific sites or classes of similar sites will be assigned appropriate use categories.

III.K Visual Resources

The CPNM encompasses a dramatic expansive landscape that is in a relatively undeveloped state. Conservation of the area's scenic attributes was an



Photo 26: Soda Lake with Water (BLM File)

important factor in its designation as a National Monument, and was a major issue in public scoping comments for the RMP. The scenic qualities of most landscape settings in the Monument are defined by striking natural features – the vast open vistas across the plain, backed by stark mountain ridges. Structures from historic and present-day ranching operations are integral parts of a pastoral landscape on the valley floor. Seasonal landscape elements include one of California's most dramatic spring wildflower blooms. Another important component of the visual integrity of the Monument is its dark night skies. As the population of California increases, light pollution has impacted night sky viewing opportunities in many areas. There are outstanding opportunities for viewing the night sky at easily accessible locations within the Monument, such as Caliente Ridge and the Soda Lake Overlook. Astronomy classes and amateur astronomers are drawn to the Plain from as far away as Los Angeles and the San Francisco Bay area.

On-going activities to improve the scenic quality of the Monument have included efforts to eliminate unneeded facilities. These efforts have included removal of derelict equipment and debris (when not historically significant), taking out old fencing, hauling away trash, and eliminating unusable structures. Facilities required for management purposes are designed or modified where possible to mimic historic structures, are placed in areas with natural screening, or are finished to borrow from natural landscape colors. An example is the painting of storage tanks to appear less intrusive and to better harmonize with their surroundings.

When developments complement and borrow form, line, color, and texture from existing characteristic landscape features, they minimize impacts to the landscape and retain the visual integrity of the area. BLM uses the VRM system as a framework to assess scenic values on public lands and to protect visual integrity and manage visual impacts from activities and projects. The visual resource inventory (VRI) for the planning area used the Carrizo Plain ecological subregions as a basis (Map 3-1), since these units corresponded to landscape elements with similar character. Public lands within the CPNM were inventoried based on three factors: relative levels of scenic quality, level of viewer sensitivity to landscape changes, and distance of an area from points or corridors of high viewer sensitivity.

Based on these factors, VRI classes were assigned to different parts of the planning area and used as a basis to consider visual values in the RMP land use allocations. For the CPNM, the inventory classes were assigned to each of the subregions shown on Map 3-1. All of the subregions were assigned a VRI Class II, except the Temblor Range and Caliente Mountain South Subregions, which were assigned as Class III. VRI Class I designations are reserved for areas with special designations such as wilderness, WSAs, and designated wild and scenic river corridors where a decision has already been made to retain the natural qualities of the area. Within the planning area, lands within the Caliente Mountain WSA were given a VRI Class I designation (note that the WSA overlays the Caliente Mountain North and Caliente Mountain South subregions. The portions of these subregions within the WSA are designated as VRI Class I).

VRM classes were assigned on these inventory classes and are defined in the next chapter.

III.L Wilderness Study Area and Other Lands with Wilderness Characteristics

Section 603 of FLPMA directed BLM to review roadless areas under its jurisdiction of 5,000 acres or more having wilderness qualities and to recommend to the President the suitability of such areas for preservation as wilderness. In determining these characteristics, the law directs BLM to use the criteria given by Congress in the *Wilderness Act* of 1964.

The original inventory process, initiated in 1978, examined the public lands in the planning area to determine and locate the existence of areas that met these wilderness criteria. Lands in the Caliente

Mountain area met the inventory criteria and were established as the Caliente Mountain WSA (#CA-010-042) that contains 17,984 acres. The result of the inventory process was published in *Final Intensive Inventory, Public Lands Administered by BLM California Outside the California Desert Conservation Area Wilderness* (BLM 1979). Subsequently, in 1988, BLM issued the *Final Environmental Impact Statement for the Central California Study Areas* that analyzed the impact of adding the WSA to the National Wilderness Preservation System and, in June 1991, the Secretary of the Interior sent a recommendation to the President that the area should not be designated wilderness through the *California Statewide Wilderness Study Report*.

Congress has the sole authority to designate an area as wilderness. Until Congress decides whether to designate the area as wilderness or release the area from further consideration for wilderness, BLM is required to manage the Caliente Mountain WSA so as to not impair its suitability for this designation. Commonly called the nonimpairment standard, the management framework for BLM to manage the WSA to meet this mandate is found in the *Interim Management Policy for Lands under Wilderness Review* (BLM 1995). The nonimpairment standard applies to all uses and activities except those specifically exempted from this standard by FLPMA, such as grandfathered uses and valid existing rights. If a wilderness bill is enacted into law for the CPNM, this RMP will be updated accordingly to ensure compatibility with, and implementation of this legislation.

Since the original BLM wilderness inventory was conducted in 1978-1979, there have been extensive land acquisitions within the planning area. Many of these lands have been impacted by past farming and other land uses. However, over time, some intrusions on these acquired lands, as well as on previously inventoried public lands (found not to have wilderness qualities at the time of inventory), have reverted to a more natural condition. In other areas, fences, structures, two-track roads and other imprints have been physically closed and/or removed and lands have been restored to a more natural condition.

As part of the development of this RMP, lands within or adjacent to the Caliente Mountain WSA, and other lands within the Monument, have been examined to determine if they have wilderness characteristics. Also, one small acquired inholding (approximately 40 acres) within the Caliente WSA was inventoried and found to possess wilderness characteristics.

III.M Areas of Critical Environmental Concern

ACECs are areas of public land where special management attention is required to protect important natural and/or cultural resource values. The ACEC designation indicates to the public that BLM recognizes these significant values and has established special management measures to protect them.

Prior to designation as a National Monument, the Carrizo Plain was designated as an ACEC in the Caliente RMP (BLM 1997). The ACEC was designated to protect relevant and important values including sensitive plant, animal, cultural, Native American traditional lifeway, and geologic resource values; it consisted of 143,300 acres of BLM surface ownership, 10,880 acres of subsurface only, and 55,730 acres of surface only. The Presidential Proclamation identifies and requires protection of the same values that were identified under the ACEC designation. Therefore, the ACEC designation is now considered to be duplicative and no longer necessary for lands within the boundary of the CPNM. However, some ACEC acreage extends outside the CPNM; these lands are outside the scope of this plan and will be assessed in the Bakersfield RMP regarding continued management as an ACEC.

III.N Livestock Grazing

III.N.1 Introduction and Applicable Regulatory Framework

The Proclamation establishing the CPNM states that:

Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument.

As part of all RMPs, BLM must allocate which lands under their jurisdiction will be available for livestock grazing and which land will be unavailable. There are currently 170,100 acres designated as available for livestock grazing within the Monument and 36,400 acres are unavailable. Livestock grazing on the lands designated as available is currently administered under two separate types of authorizations utilizing different subparts of the federal grazing regulations. Approximately 55,900 acres are authorized under Section 15 (of the *Taylor Grazing Act*) livestock grazing leases, and these are located principally in the Temblor and Caliente Mountain Ranges. Livestock grazing occurring primarily on the valley floor of the Monument (approximately 114,200 acres) is currently authorized under free use grazing permits, in accordance with 43 CFR 4130.5(b)(1). Grazing permits or leases authorize grazing use on a specific management unit called grazing allotments. All grazing allotments within the Monument are depicted on Map 3-7, Grazing Allotments.

III.N.2 Historic and Current Grazing Authorizations

The unique and complex livestock grazing management systems used within the CPNM have evolved through time, following changes in land ownership, federal grazing regulations, and the available information on livestock management effects in the area. The designation of the Monument has also refocused the managing partners on determining the appropriate use of grazing as a vegetation management tool to meet Monument goals.

Prior to TNC, BLM, and CDFG land acquisitions starting in 1987, nearly all of the private lands were grazed by cattle and sheep, including the cultivated farm fields. BLM's ownership in what is now designated the CPNM was limited to original public domain lands in the Temblor and Caliente Mountain Ranges and the Soda Lake lake bed. Much of this area (excluding the area around Soda Lake) was determined to be suitable for livestock grazing under BLM planning guidance. Several grazing leases were authorized under Section 15 of the *Taylor Grazing Act*. Many of these grazing leases have been in place since the early 1930s.

Rangeland health assessments on all grazing allotments are completed with an interdisciplinary team that evaluates the health standards for soils, species, riparian, and water quality in the field, based on several qualitative indicators. Rangeland health assessments have been completed on all the allotments authorized by Section 15 leases, except the Chimineas Ranch South allotment (since it is currently vacant).

In 1987, TNC and BLM started acquiring significant acres of new land within the valley floor area of the CPNM. TNC purchased 82,000 acres in 1987 and BLM acquired 23,000 acres in 1988 and another 28,500 acres in 1989. With these purchases, TNC owned base property adjacent to this newly acquired BLM land and therefore also had priority for new federal grazing privileges. BLM issued TNC Section 15 grazing leases for the acquired lands, where TNC then pastured the livestock of local livestock owners.

A rest-rotation livestock grazing management program was designed and initiated on the new land acquisitions in these valley floor and foothill allotments in December 1989 to provide conditions for

native perennial plant establishment while helping to reduce the competition from nonnative annual plants. In 1995, the Secretary of the Interior issued new federal regulations for grazing management that, among other things, allowed free use grazing permits to be issued by BLM for the management of vegetation to meet resource objectives other than the production of livestock forage or for conducting scientific research or administrative studies. Base property (required for a Section 15 grazing lease) is not required to hold a free use grazing permit. TNC relinquished its Section 15 grazing lease on the valley floor and foothill allotments in 1995 and BLM then issued free use grazing permits to local ranchers who, for the most part, had been using the lands prior to acquisition. The allotments that are authorized by these free use grazing permits support the grazing study and monitoring program are described in the following section.

III.N.3 Grazing Studies and Vegetation Management

A grazing study and monitoring program began on the valley floor and foothill allotments in 1996 to help determine whether grazing is an appropriate tool for providing habitat suitable for long-term sustainable populations of listed species and the restoration of native communities. The study was designed to provide information about the effectiveness of livestock grazing as a tool to remove standing biomass, reduce the dominance (as defined by density, cover, and frequency) of nonnative annual species, and enhance the re-establishment of native species. The results from the Carrizo grazing study do not support the general hypothesis that livestock grazing applied in this manner is beneficial for native plant communities; specifically, it does not enhance native annual plant species, nor decrease exotic ones (Christian et. al., in prep.). Throughout the valley floor and foothill allotments in the Monument, there are areas that are not grazed to provide controls for research and to protect sensitive areas such as Painted Rock and alkali wetlands. These 36,400 acres of non-grazed lands are designated as unavailable for livestock grazing in the Caliente RMP of 1997.

The existing grazing study and monitoring program occurs on public lands within eight grazing allotments or management units within the valley floor and foothill area, totaling approximately 114,200 acres. Grazing authorizations are currently issued annually on these allotments by BLM, specifically under 43 CFR 4130.5(b), the regulations on free use grazing permits, for the management of vegetation to meet resource objectives other than the production of livestock forage and/or to conduct scientific research or administrative studies. Rangeland health assessments have been completed on the Washburn Ranch and KCL Ranch allotments, and both allotments were determined to be meeting all standards of rangeland health. The remaining allotments authorized by free use grazing permits have not yet been assessed.

The managing partners have been developing a more comprehensive approach to applying livestock grazing treatments since 2005. The new approach to grazing management focuses on the objectives and needs of each resource value or conservation target and correlates those to the various management actions or treatments geared to meet those objectives. This new document is called the Conservation Target Table. A separate guideline/pasture matrix will identify the resource values or targets within each pasture and list the compiled management prescription for that pasture based on the direction from the Conservation Target Table. The locations of the key resource values and grazing management prescriptions in this matrix were developed and applied over time with input from all the managing partners and species experts and are adjusted as new information becomes available. Generally, application of livestock grazing within the pastures largely depends on yearly precipitation rates as reflected by green-up or vegetation response, the existing annual residual dry matter present, and the resultant species composition.

In dry years, or in years with favorable annual species composition, little or no livestock grazing may be necessary to meet resource objectives. Each year, pastures within the free use grazing allotments are

evaluated based on the criteria in the current pasture matrix and grazing is applied as necessary to meet the objectives for that pasture's resources.

Although no authorized grazing has occurred on CDFG lands to date, livestock grazing could occur on these lands under 14 California Code of Regulations (CaCR) 630(b)(29)(C), entitled the Carrizo Plains Ecological Reserve, but only under permit from the CDFG. If authorized, livestock grazing would be managed consistent with the Monument grazing study and monitoring program and any other grazing prescriptions deemed necessary by the CDFG.

Unfenced private lands within the Monument may also be grazed by other private landholders, and the use of these areas may not conform to the grazing prescription placed on public lands.

III.N.4 Livestock Management Facilities

The use and development of livestock management facilities on public lands is authorized through cooperative agreements. Maintenance of these facilities is generally the responsibility of the grazing permittee or lessee. However, BLM has assumed a portion of this maintenance. BLM maintains title to such range improvements (livestock management facilities) on public lands. Existing livestock management facilities, including access roads, corrals, barns, water pumps, water tanks, water troughs, pipelines, spring collection boxes, fences, and cattle guards are used, as appropriate. When consistent with the Monument mission, and needed to achieve management objectives, facilities may be constructed or modified to prevent or reduce livestock distribution problems or to help facilitate the grazing system.

Existing facility maintenance occurs periodically throughout the year, and may include grading, mowing, or repairing roads; repairing drainage crossings; cleaning or replacing culverts; scraping out or modifying corrals; hauling materials from existing roads to repair fences; mowing vegetation along fences; cleaning out, replacing, or moving cattle guards; repairing, removing, or replacing water tanks, their bases, and troughs; locating and repairing, replacing, or bypassing sections of buried pipeline; and locating, cleaning out, repairing, or replacing spring collection boxes.

III.O Recreation and Interpretation

The CPNM is a destination for a relatively small number of visitors annually, considering its proximity to the southern and central California population centers. Recreational use in the CPNM is oriented toward enjoyment of the area's natural and historic resources. People visit the Monument to view wildlife and birds, to see the spectacular wildflower displays in the spring, to walk along the San Andreas Fault, to visit the pictographs at Painted Rock, and to just enjoy the solitude. Other visitors enjoy hunting opportunities in the



Photo 27: Bicyclists (BLM File)

mountains surrounding the plain, camping in the foothills, horseback riding, hiking, and various other outdoor activities.

A majority of the recreational use of the National Monument is concentrated around the Goodwin Education Center, Soda Lake, Painted Rock, Selby, and KCL campgrounds, the Caliente Mountains, and along the Elkhorn Plain (see Map 3-8, Visitor Services and Recreation). Seasonal use varies based on the wildflower bloom in a given year, weather, and the availability of upland and big game. The highest visitation occurs from December through May. The lowest visitation occurs during August, when the summer temperatures peak.

Visitor use for CPNM has been collected and reported annually through the BLM RMIS since the 2001 Monument Proclamation. Overall use increased from approximately 24,620 visitors in fiscal year 2001 to 87,040 in fiscal year 2007. The increase has been fairly steady over the past 7 years as more and more people learn about the features of the Monument. Anecdotal observations by on-site personnel indicate that there is a trend toward more individual, family, and small group use on the Monument. A large portion of the use in the past was by large groups such as university classes or club activities. There is also a noticeable increase in the number of OHVs visiting the area looking for riding opportunities. Recreational use on the Monument is expected to continue to increase at moderate rates similar to the increase in use experienced over the past 7 years.

III.O.1 Recreation Activities

III.O.1.1 Auto Touring and other Motorized Recreation Use

The majority of Monument visitors tour the area in cars, stopping at scenic viewpoints, interpretive overlooks, hiking trails, and other points of interest along the way. The majority of these visitors stay on Soda Lake Road. Specific attractions viewed by touring visitors are described in Section III.O.2 below. More adventurous visitors access the back roads of the Monument with pickups and sport utility vehicles. Most of this use occurs during hunting season. Vehicle use is further discussed in Section III.Q, Travel Management.

III.O.1.2 Hiking

Hiking in Carrizo is generally self-guided and takes place on roads, trails, and cross-country. There are only a few developed trails within the Monument. These include the Caliente Ridge Trail and various interpretive trails:

- Caliente Ridge Trailhead: This 7-mile long trail is accessed from a small trailhead located at the top of Caliente Ridge and provides panoramic views of the Carrizo Plain as well as the Temblor Range and parts of Cuyama Valley. This trail also provides excellent opportunities for wildlife viewing and bird watching.
- Caliente Mountain Trailhead: This trailhead is located 13 miles west of Cuyama on Highway 166. Wide open spaces and spring wildflowers set the stage for hiking on this 2.0-mile trail. This trail is not well defined due to recent fires. Hunters favor the trail for access to deer and quail on adjacent public lands.
- Interpretive trails: see Section III.O.2.2 below.

III.O.1.3 Camping

There are two developed campgrounds in the CPNM with a total of 17 single-unit sites, 4 walk-in sites, and 3 group sites. All camping is currently free on the Monument.

KCL Campground is a semi-primitive campground located at what was the headquarters of Kern County Land Company. It has some of the few shade trees found on the CPNM. KCL campground still has a few historic buildings used by the ranch when it was in operation. There are four developed single-unit campsites, four walk-in sites, and two group campsites. Each campsite includes one *Americans with Disabilities Act*-compliant picnic table, fire ring/grill, and lantern holder. There is one permanent double-toilet building. The group campsites are designed to accommodate equestrian user groups and include individual corrals.

Selby Campground is also a semi-primitive campground equipped with 13 shade structures, picnic tables, and fire pits. There is one permanent double-vault toilet. The campground is located at the base of the Caliente Mountains. There are no shade trees; however, the campground is more secluded than KCL.

Dispersed camping is also allowed within certain areas of the CPNM. The designated dispersed camping areas encompass approximately 100,000 acres where car, tent, backpack, or horse camping is allowed. Generally, dispersed camping is permitted in the foothills and mountainous areas. Dispersed camping is **not** permitted on the valley floor area to protect sensitive biological resources and to prevent obstruction of scenic vistas, nor is it permitted at Soda Lake and adjacent areas.

III.O.1.4 Hunting and Shooting

The CPNM offers a wide variety of hunting opportunities. The CPNM has populations of California quail, chukar, cottontail rabbit, deer, tule elk, and wild pigs for the hunter. Nearly all of the CPNM is open to hunting. Areas **not** open to hunting include a large safety zone surrounding the Guy L. Goodwin Education Center and Painted Rock; all designated campgrounds; administrative and recreational facilities including Painted Rock Ranch, Washburn Ranch, and MU Ranch; all pullouts and informational kiosks; Soda Lake; Traver Ranch; and Wallace Creek.

Hunting in the Monument is managed and regulated by the CDFG. Nothing in the Monument Proclamation affects the jurisdiction of the State of California with respect to fish and wildlife management. All sections of the CDFG Code and 14 CaCR are in effect.

There is no target shooting allowed in the Monument.

III.O.1.5 Equestrian Use

Equestrian use is permitted on the CPNM. Trailer parking is available, but limited to already impacted areas such as campgrounds and parking areas. Equestrians are prohibited on most walking trails, including but not limited to Painted Rock, Wallace Creek, Soda Lake Boardwalk, and Overlook Hill. Portions of some walking trails are used to for equestrians to get past enclosures and exclosures as allowed and signed, such as the Caliente Ridge trail head and the Caliente Mountain Trail.

III.O.1.6 Mountain Biking

Mountain bike use is permitted on the approximately 460 miles of existing public roads on the CPNM. On the Monument, bikes are treated like vehicles and must stay on designated roads. Mountain bikes are

prohibited on most walking trails, including but not limited to Painted Rock, Wallace Creek, Soda Lake Boardwalk, and Overlook Hill.

III.O.2 Interpretation and Education

III.O.2.1 Goodwin Education Center

The Guy L. Goodwin Education Center is located 7.4 miles from the north entrance or 30 miles from the south entrance on Soda Lake Road. The center offers the visitor interpretive displays and exhibits explaining the uniqueness of the Carrizo Plain and the adjoining Elkhorn Plain. The Goodwin Education Center is open seasonally from the beginning of December to the end of May. Normal days and hours of operation are Thursday through Sunday, 9:00 a.m. to 4:00 p.m.



Photo 28: Goodwin Education Center (BLM File)

Accessible restrooms at the Goodwin Education Center are open 24 hours a day, 7 days a week, throughout the year. A wide array of merchandise is available for purchase. Informational maps and brochures are available at the front door when the center is closed. The Goodwin Education Center driveway may be closed if road conditions are too muddy for vehicles. Visitors are welcome to hike in during these times. Seasonal tours are offered on the Monument and are coordinated through the Goodwin Education Center.

III.O.2.2 Interpretive Trails

Painted Rock Trail: The Painted Rock Trail is located 2 miles south of the Goodwin Education Center. This trail gives visitors access to the level 1.4-mile round trip trail to the Painted Rock cultural site. The trail is open to pedestrians only (no mountain bikes, dogs, or horses). Painted Rock is closed from March 1st to July 15th to protect the wildlife and resources. During this closure, tours are available through the Goodwin Education Center.

Traver Ranch Trail: The Traver Ranch homestead has a self-guided tour of old farming equipment and discusses the history of farming on the Carrizo Plain.

Wallace Creek Trail: A self-guided 1/5 mile interpretive trail has been constructed at Wallace Creek and along a portion of the San Andreas Fault. The trail walks visitors through the geological impact of the San Andreas Fault on the CPNM over time.

Soda Lake Boardwalk Trail: The boardwalk that goes along the edge of Soda Lake is located on Soda Lake Road across from Overlook Hill.

Overlook Hill Trail: The Overlook Hill Trail is located off Soda Lake Road 2.1 miles inside the north entrance and provides a great view of Soda Lake and the Carrizo Plain. The trail is short but steep.

III.O.2.3 Guided Tours

All docent-guided tours are scheduled through the Goodwin Education Center or the Outdoor Recreation Planner for the CPNM.

Wildflowers and Painted Rock Tour: During the spring there are opportunities for a docent-guided tour of the wildflowers and Painted Rock.

El Saucito Ranch House Tour: The El Saucito Ranch House is the oldest standing ranch property in the Carrizo Plain, dating back to the late 1870s. The house and the surrounding buildings are currently under renovation and are open to special tours during certain times of the year. There is an informational kiosk and a 0.25-mile interpretive trail on the property.

Driving Tours: A booklet containing two self-guided auto tours is also available for purchase at the Goodwin Education Center or through the BLM Bakersfield Field Office.

III.P Public Safety and Emergency Services

III.P.1 Emergency Response

The isolation of the CPNM complicates emergency medical response and emergency preparedness. Emergency medical transportation may take up to two hours depending on the availability of resources. The California Highway Patrol staffs a helicopter that responds to medical emergencies in the area. However, depending on the availability of the helicopter, it may be delayed. Ground ambulances are dispatched from San Luis Obispo or Kern counties depending on the location of the incident. There are no public phones located within the Monument. Cell phones are able to receive services in some locations; however, it is patchy.

Public safety and law enforcement activities are handled by specialists within BLM, the CDFG, and other law enforcement agencies. Search-and-rescue operations are handled by the San Luis Obispo and Kern County sheriffs' offices.

The CDFG has wildlife protection personnel assigned to southeastern San Luis Obispo County to provide wildlife law enforcement. Additionally, the California Highway Patrol conducts aerial patrols, and the San Luis Obispo County sheriff's office provides general law enforcement capabilities.

The CPNM is covered under mutual aid agreements with surrounding agencies for medical and fire protection.

III.P.2 Valley Fever

Coccidioides immitis, the fungus that causes valley fever, thrives in the alkaline desert soils of southern Arizona, northern Mexico, and California's San Joaquin Valley. This includes parts of the CPNM. This fungus has a complex life cycle. It grows in soils as mold with long filaments that break off into airborne spores when soils are disturbed. These spores are very small and can be carried hundreds of miles.

For more than half the people infected, this poses no problem. Their immune system effectively fights off the fungus and they never develop symptoms. Others have varying degrees of symptoms such as chest

pain, weakness, fever, chills, night sweats, and joint aches. In some cases, the illness progresses to severe pneumonia or spreads beyond the lungs and may ultimately prove fatal.

BLM uses BMPs to minimize the chances of the release of this fungus on all projects that occur within the Monument. Both the San Luis Obispo and San Joaquin Valley air pollution control districts have regulations that govern earth-disturbing work, such as excavation and new construction. These regulations have varying requirements for dust control according to the size and scope of the work being performed.

III.Q Travel Management

The CPNM has a long history of mechanized farming that has resulted in a large network of roads throughout the Monument. Some of these roads are used for visitor enjoyment of the area and for resource management activities. However, many other roads are no longer necessary, poorly sited, redundant, or causing impact on the land. The intent of the travel management program is to provide a travel network that will protect the Monument's natural and cultural resources, allow for administrative access for management and restoration activities, and provide opportunities for visitors to experience the uniqueness of the CPNM while protecting the objects of the Proclamation. The travel management program also includes limitations on use to ensure safety or to protect resources from degradation due to excessive erosion, dust, wildlife disturbance, and other impacts.

All public lands in the planning area are designated through a two-level process in this RMP. The first level is the Area Designation. Under the Area Designation, all BLM lands in the planning area are designated as either an open area, a limited area, or a closed area regarding vehicle travel under the BLM OHV regulations (at 43 CFR 8342). Under the Monument Proclamation, no off-road motorized or mechanized travel is permitted, so the area designations are either limited area or closed area in the RMP. A second level of designation applies to the roads themselves. Roads are designated within the RMP along with limitations on the types of use allowed. Note that BLM travel management designations only apply to BLM-managed lands, roads and trails, and not to county roads such as Soda Lake or Elkhorn roads.

III.Q.1 Area Highway Access

The CPNM has two major sources of access. From the north, the access is via Soda Lake Road off of Highway 58. Highway 58 is a two-lane paved highway connecting to Highway 101 in the west at Santa Margarita (50 miles away) and east to Interstate 5 (43 miles to the east). The other major access is from the south via Soda Lake Road or Elkhorn Road (both county roads) off of Highway 33/166. Highway 33/166 is a two-lane highway connecting to Highway 101 near Santa Maria (60 miles west) and Interstate 5 (45 miles east). Although traffic volumes are higher on the Highway 33/166 corridor, the majority of visitors enter the CPNM from the north off of Highway 58 and Soda Lake Road. Most of the Monument facilities and popular attractions are more easily accessed via this route.

III.Q.2 Road Conditions within the CPNM

Many roads within the Monument have an unimproved dirt surface. During periods of rain, a number of roads become impassable. The main road, Soda Lake Road, is open year round. However, rains may make parts of Soda Lake Road slippery, muddy, and impassable at times. The Caliente Ridge Road can be especially dangerous when wet and may be closed periodically during periods of heavy rain or snowfall. All roads in the Monument may be closed periodically for safety conditions such as fire hazard, weather, or unsafe conditions.

III.Q.3 Road Maintenance

BLM and the County of San Luis Obispo maintain most of the roads within and immediately adjacent to the Monument. Most of the roads within the Monument are unimproved dirt; however, some portions of Soda Lake Road are paved.

County roads within the Monument are managed to complement the direction of the Monument Proclamation and current management plans. There are approximately 71 miles of unpaved road and 17 miles of paved road that are maintained by the county. These routes serve as primary travel corridors within the Monument and BLM coordinates with San Luis Obispo County to facilitate maintenance and ensure that it does not impact objects of the Proclamation.

The 370 miles of BLM administered roads are maintained on an as-needed basis by the BLM Bakersfield Office. Roads that give access to major recreation sites are given the priority. BLM does not maintain roads on privately owned lands.

III.R Minerals

Based on the Monument Proclamation and associated withdrawals, only those valid leases, claims, and other rights that existed as of the date of the Proclamation, January 17, 2001, may see mineral development on federal lands within the Monument. Other laws and policies guiding the minerals management within the Monument vary by the type of mineral resource and are described in more detail below.

III.R.1 Private Mineral Estate within the Monument

Approximately 53 percent of the mineral estate within the Monument is privately owned (see Map 3-9, Oil and Gas Wells within the Carrizo Plain National Monument). If agency approval is required for mineral development on privately owned minerals, the proposal would be subject to environmental review under CEQA and/or NEPA.

When federal approval is required, the proposal would be subject to review under NEPA, and compliance with other applicable laws, such as the federal *Endangered Species Act* and cultural resource protection laws. The applicant would be subject to appropriate stipulations, conditions of approval, and mitigation/compensation requirements. BLM would work with the state, county, and local agencies to ensure that the mission and purpose of the Monument is not impaired and only reasonable uses of public lands may be made to access and develop private mineral estate.

Private lands are not directly affected by this plan or the Monument Proclamation. However, access to non-federal minerals across federal surface may require a federal right-of-way or other federal permit, likely resulting in longer timeframes for approval and increased project costs. Holders of outstanding third-party rights where privately held mineral rights underlie surface managed by TNC, CDFG, and private parties will also be required to adhere to county regulations and CEQA requirements for surface-disturbing activities.

III.R.2 Mineral Resources within the Monument

The Monument contains a number of extractable minerals, that is, minerals that are removed from the land by mining, producing through a well bore, or other means. These minerals include oil and gas, sand and gravel, gypsite, phosphate, sodium sulfate, and others. These minerals are managed in accordance with the *Mineral Leasing Act* of 1920, as amended; the *Mining and Minerals Policy Act* of 1980; the

Mining Law of 1872, as amended; the *Federal Onshore Oil and Gas Leasing Reform Act* of 1987; FLPMA; 43 CFR; Onshore Orders 1-8; notices to lessees; other laws, regulations, and orders; and in accordance with all applicable state, county, and local laws and ordinances.

As of January 17, 2001, there were 19 federal oil and gas leases within the Monument. Nine of these were in producing status, either based on actual production or else due to allocated production if they were in a producing unit. Since that time, all of the leases that were not in producing status have expired or terminated. The only production in the Monument, including both private and federal, is near the southwest boundary, virtually all within the boundaries of the Russell Ranch unit, with a very small amount from the Morales Canyon Field (see Map 3-10, Producing Oil Fields in the Carrizo Plain National Monument). Private leases are not recorded with BLM, so it is unknown whether there are private leases within the Monument (other than within the Russell Ranch Unit, a federal unit that contains both private and federal leases.) No new leasing of federal minerals will be allowed because of the Monument Proclamation and associated withdrawal.

There were no valid claims, leases, or other valid existing rights pertaining to solid minerals as of the date of the Monument Proclamation, so there will be no development of these minerals on federal mineral estate except for emergencies and administrative purposes, as described elsewhere in this document.

A description of the various mineral resources within the Monument is contained in the following sections.

III.R.2.1 Oil and Gas Resources

Minor commercial quantities of oil and gas have been located in two areas of the Monument: in the northeast part of the Temblor Range and the south side of the Caliente Range. On the south side of the Caliente Range are two minor fields and a portion of a major oil field, the Russell Ranch field. There are approximately 45 wells within the Monument boundary: 15 producing and 30 shut-in wells. Approximately half of the producing wells are federal. Current federal production within the Monument is approximately 1,200 to 1,500 barrels of oil per month (BOPM), with a current value of \$110,000 per month and \$15,000 per month royalty to the government. The non-federal production is approximately 1,000 to 2,000 BOPM. There are few active wells outside the Russell Ranch field (see Map 3-9, Oil and Gas Wells within the Carrizo Plain National Monument, and Map 3-10, Producing Oil Fields in the Carrizo Plain National Monument). Many of the shut-in wells will be required to be plugged and abandoned or else returned to production within the next 10 to 15 years.

Of the five oil fields that are partially or totally within the boundary, three of the fields, Temblor Hills, Gonyer Anticline, and Taylor Canyon, do not contain any active wells. The remaining two fields, Morales Canyon and Russell Ranch, contain a total of seven active federal leases. No commercially successful wells have been developed outside of these areas in the Monument, although indications of oil and gas are common in the 267 wells drilled elsewhere in the Monument. Wells up to 18,000 feet deep have been drilled in the Monument without finding commercial quantities.

By contrast, the Monument is surrounded by six giant and super-giant oil fields (fields with over 100 million and 1 billion barrels of reserves, respectively) and numerous smaller productive fields. The Midway-Sunset field, the largest oil field in California and the lower 48 states, lies a few miles to the east of the Monument near Taft. With several billion barrels of oil having been produced in the general area since the late 1800s, this is one of the largest oil-producing regions in the country.

The generally unsuccessful exploration of the Monument can be attributed to the lack of a mature organic source for hydrocarbons and/or lack of a timely trapping structure (USGS 1995). Due to the lack of recent

success, exploration activities have been virtually nonexistent for decades. However, recent advances in technologies (including seismic exploration, drilling, and production technologies), along with significant increases in oil and gas prices, may result in more activity in the future.

Although the CPNM is closed to new federal leases, a full range of exploration and development activities may still occur both on existing federal leases and on private leases. This includes seismic exploration, road building, drilling new wells and re-working old wells, laying pipelines, and other activities. Although there has been no new development for the last 10 to 20 years, BLM received a request from a private mineral owner in early March 2008 to conduct seismic operations on the CPNM valley floor.

III.R.2.2 Solid Minerals

Solid minerals are divided into three categories: locatable, solid leasable, and saleable mineral materials, which historically included the following in the CPNM:

- Locatable minerals: gypsum in the form of gypsite
- Solid leasable minerals: low-grade phosphorus from marine shales and sodium sulfate
- Saleable minerals: sand and gravel

There were no valid claims, leases, or other valid existing rights pertaining to solid minerals as of the date of the Monument Proclamation, so there will be no private development of these minerals on federal mineral estate.

III.R.2.3 Other Leasable Minerals

Geothermal resources are considered a type of leasable mineral. According to the California Division of Mines and Geology, the Monument is favorable for discovery of thermal water at shallow depth. However, there are no known geothermal resource area designations, identified hydrothermal convection systems, or any warm springs within the boundary of the Monument (Muffler 1979; Higgins 1980).

There were no geothermal leases at the time of the Monument Proclamation. Under the Proclamation, federal lands within the Monument are withdrawn from mineral entry and no new geothermal leases are allowed. It is unlikely that there will be development of geothermal resources on non-federal land, so geothermal exploitation is not expected to be an issue in the Monument.

III.S Lands and Realty

III.S.1 Acquisition History and Current Land Status

In 1984, TNC and BLM agreed to explore the possibility of acquiring extensive lands in the Carrizo Plain region. This land, to be set aside for conservation and restoration, would function as a single, large macropreserve for rare and endangered San Joaquin Valley species, as well as other components of San Joaquin Valley vegetation and wildlife. Several workshops were held between TNC, BLM, the CDFG, and the USFWS to determine strategies and priorities for acquisition of these lands.

In January 1988, TNC purchased 82,000 acres on the Carrizo Plain from Oppenheimer Industries. BLM received funding from Congress to acquire 23,000 acres in 1988 and another 28,500 acres in 1989. The California Wildlife Conservation Board purchased 3,000 acres from TNC in December 1988 and 2,500 acres in 1989 to be managed by the CDFG.

As of 2003, surface and mineral ownership within the Monument is a mixture of BLM, state, TNC, and other private owners (see Table III.19-1 and Map 3-11, Land Ownership Status).

Table III.S-1. Surface Land and Mineral Ownership in the Monument

Land Owner	Surface Estate (Acres)	% of Total Monument Area	Mineral Estate (Acres)
BLM	206,000	83%	108,000
CDFG	9,300	4%	9,300
TNC	75	<1%	75
Other private owners	32,000	13%	130,000
Total	247,375	100%	247,375

Applications and requests for facilities and access are analyzed and authorized either under the right-of-way regulations or the minerals regulations depending on the type of use. Terms and conditions that may apply to right-of-way corridors or development areas include BMPs to minimize environmental impacts and limitations on other uses necessary to maintain the corridor and right-of-way values.

BLM continues to actively pursue acquisitions within the Monument boundary. Some of the potential sellers are expected to retain at least the oil and gas rights. In total, approximately 53 percent of the mineral estate within the Monument is privately owned (see Map 3-12, Land Status and Withdrawals). Additional information on the mineral, oil, and gas program can be found in Section III.R, Minerals.

Of the approximately 32,000 acres of private land remaining, the largest inholding (approximately 11,000 acres) is part of a privately owned ranch. The other 22,000 acres include many individual parcels ranging in size from approximately 0.1 acre to 2,100 acres. There are approximately 500 private land parcels remaining in the Monument.

III.S.2 Managing Partner Coordination on Realty Issues

The managing partners recognize that management activities on their respective lands are subject to different authorities and policies, so they coordinate regularly to ensure seamless management of the Monument, including realty-based issues. The partners have shared a long-term commitment to acquiring private inholdings within the Monument, both surface lands and interests in lands, where the landowners are willing sellers. The managing partners are continuing to acquire these inholdings through purchase, donation, or exchange. Priorities for acquisition have included those parcels that are available, special status species habitat, cultural resources, unique natural and geologic features, and WSA inholdings.

III.S.3 Existing Federal Withdrawals

Under the Proclamation establishing the Monument, all federal lands and interests in lands within the boundaries of the Monument were withdrawn:

from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the Monument.

Two national cooperative land and wildlife management areas are present within the Monument: the Caliente and the Temblor National Cooperative Land and Wildlife Management Areas. These areas were

withdrawn in 1961, and encompass 59,000 and 58,000 acres respectively (see Map 3-12, Land Status and Withdrawals). The withdrawal orders (Public Land Orders 2326 and 2460) segregated the BLM lands from application under the non-mineral public land laws and from disposition under the homestead, desert land, and scrip selection laws. With the issuance of the Monument Proclamation, these national cooperative land and wildlife management area withdrawals are now duplicative.

III.S.4 Road and Utility Easements

Two BLM-designated utility corridors currently exist in the Monument. These were adopted in the 1997 BLM Caliente RMP and are an adoption of the 1986 Western Regional Corridor Study. They are located at the northern end of Soda Lake and just south of Soda Lake (see Map 3-13, Infrastructure). They run generally east-west and are occupied only by electric power lines at present, with the northern corridor containing twin 500 kilovolt (kV) lines originating from the Diablo Canyon Power Plant on the Pacific coast. The southern corridor contains a single 70 kV line.

III.S.5 Other Rights-Of-Way and Permits

Currently, there are no realty leases or land use permits that are authorized by BLM within the Monument. There are several rights-of-way that were authorized by BLM on original public domain lands prior to the establishment of the former Carrizo Plain Natural Area. These are mostly for electric power lines that have been in place for several decades. One underground communication cable runs the length of the Monument generally paralleling Soda Lake Road. Use of this cable was discontinued in 2001.

Various third-party rights exist on the acquired lands, such as road and utility easements and mineral rights. These rights are infrequently exercised, but are allowed since BLM acquired the lands subject to these rights. BLM maintains records of third-party rights. The other managing partners maintain separate records of third-party rights that affect their respective properties.

A permit is required for all commercial filming activities on public lands. Commercial filming is defined as the use of motion picture, videotaping, sound recording, or other moving image or audio recording equipment on public lands that involves the advertisement of a product or service, the creation of a product for sale, or the use of actors, models, sets, or props. Commercial filming does not include activities associated with the broadcast of journalistic news programming. For purposes of this definition, "creation of a product for sale" includes a film, videotape, television broadcast, or documentary of participants in commercial sporting or recreation events created for the purpose of generating income.

BLM field offices generally no longer require permits for still photography except under certain conditions. However, additional permit requirements may be applied to meet specific objectives of an RMP.

III.T Social and Economic Conditions

III.T.1 Current Social and Economic Context

III.T.1.1 Communities of Place

Most of the CPNM is located within southeastern San Luis Obispo County, with portions in western Kern County. The Monument borders Santa Barbara and Ventura Counties to the south and southeast, respectively. The closest major cities are San Luis Obispo, population 44,326 (in 2006), approximately 54 miles to the west, and Bakersfield, population 306,137 (in 2006), approximately 63 miles to the east.

The region, although not on any major travelways, is easily reached via U.S. Highway 101 to the west, and from U.S. Interstate 5 to the east. The CPNM is accessible to travelers to and from major metropolitan areas, including several international and regional airports. It is within easy driving distance of the Los Angeles metropolitan area, approximately 150 miles to the southwest, and within about a half-day's drive, or approximately 300 miles, from the San Francisco area to the northwest. It is centrally located to residents from central coast communities to the west, and those along the Interstate 5 corridor to the east.

Within an approximately 10-mile radius of the Monument there are several small towns and cities, which are referred to herein as the "Carrizo Trade Area." The communities of California Valley and McKittrick are located to the northwest and north, respectively, along Highway 58. The communities of Derby Acres and Fellows are located to the northeast, along Highway 33 and north of the City of Taft. Maricopa is located to the east/southeast near the junction of Highways 33 and 166, with Cuyama and New Cuyama to the south along Highway 166. The largest of these is Taft, which in 2006 had a population of approximately 9,152 and Ford City, population 3,512 (2000, most recent available data). Maricopa's population was approximately 1,137 in 2006, while all of the other communities listed above had populations of 500 or fewer persons (U.S. Census Bureau 2000, 2006).

Given the remote and undeveloped character of the Monument itself, visitors to the Monument who need lodging, food, and other goods and services must obtain them outside the CPNM. This provides an economic and tourism opportunity for communities near the Monument, while other communities located along access points to the region may also serve visitors traveling to and from the CPNM.

III.T.1.2 Communities of Interest

In addition to those living near the Monument, there are a number of other groups and individuals who would be considered to have an interest in its management.

Native Americans

There are two Native American groups who have historically inhabited the area (Chumash, Southern Valley Yokuts). Also, the Salinan tribe occupied the area immediately north of the Carrizo. The cultural significance of the CPNM and its context as an undeveloped remnant of Native American ancestral territory cannot be overstated. The CPNM harbors some of the most significant examples of Native American rock art still extant, as well as numerous other sites of considerable cultural significance. These native groups consider the lands within the Monument to be sacred and use areas within the CPNM for plant gathering and ceremonial activities.

The Native American Advisory Committee, chartered by BLM and representatives of these three native peoples in 1997, participates in planning and project activities with the managing partners in the CPNM. Members of federally recognized and non-federally recognized Native American groups are invited to be part of the Advisory Committee and are actively involved in conferring with BLM regarding resource management on Monument lands.

Monument Visitors

Based on BLM estimates, approximately 38,700 persons visited the CPNM in year 2002 and 87,040 in 2007, reflecting a substantial increase. Data regarding these visitors' place of residence are limited to those who visited the Goodwin Educational Center and signed the visitor's register. However, based on available information, the largest percentage was from the Central Coast region of California. Use patterns and visitor data are further discussed in Section III.T.3.3 below.

Private Land and Mineral Estates Owners

Approximately 32,000 acres, or 13 percent, of surface lands within the CPNM are privately owned. Of these privately owned surface lands, approximately 11,000 acres are held by one ranch. The balance is held in parcels ranging from 0.1 to 2,100 acres, including 4 small subdivisions totaling approximately 1,700 acres. The majority of parcels in these subdivisions are undeveloped. There are approximately 130,000 acres of subsurface, or mineral, estates held by private owners. Of these, many underlie surface holdings of BLM or another of the managing partners. Land ownership history and current use are further discussed in Section III.S, Lands and Realty.

Ranchers and Farmers

The Carrizo Plain region and lands within the present-day Monument area have been used for cattle and sheep ranching since about the 1850s. As noted above, the largest private holding within the CPNM is an 11,000±-acre ranch. USDA National Agricultural Statistics Service data for livestock inventories show that cattle inventories have decreased by 36 percent in San Luis Obispo County over the past two decades, from 121,000 head in 1988 to 77,000 head in 2007. The same indicator in Kern County shows inventories fluctuating over that period, with an average increase of only 4.40 percent. Data for sheep inventories were available only through 1992; however, the trend for both counties during the four-year data period (1988 to 1992) was downward, with a 27 percent decrease in San Luis Obispo County and an 18 percent decrease in Kern County (USDA 2007). Based on these data, ranching and grazing operations in the region appear to have diminished overall in the two-decade period. Nonetheless, these operations continue to be an important local economic activity in the region and in the CPNM area. This is further discussed in Section III.T.4.3 below.

Dryland farming was introduced during the 1880s, primarily for grain crops such as barley, wheat, and to a much lesser degree oats. Although there is currently very little if any crop cultivation within the CPNM, farming is to some extent still an important part of the regional economy, particularly in Kern County and parts of San Luis Obispo, Santa Barbara, and Ventura counties.

Leaseholders

There are two major types of resource leases held by private individuals or organizations: grazing leases and mineral leases.

Grazing permits and leases are authorized within specified areas of the Monument and levels of use are variable based on the purpose of the authorization and the current resource conditions. See Section III.N, Livestock Grazing, for a complete description of the types of authorizations and also Section III.T.4.3 below.

Mineral estate leases cover the various extractable minerals found within the Monument, including oil and gas. There are nine currently active oil and gas leases on the Monument.

Monument Residents

A very small number of people actually live and work in the Monument. There are only about 12 structures within the Monument boundaries; some of these are inhabited permanently while others are inhabited for shorter periods of time during the year. The majority of residents are involved with managing the lands or conducting research. Some are associated with ranching operations.

III.T.2 Regional Demographics and Environmental Justice

The following subsections present demographic and economic information. Specific demographic and economic data have been prepared for the “Carrizo Trade Area” surrounding the Monument. This trade area consists of the area within an approximately 10-mile radius of the Monument. Cities and communities within that radius include California Valley, McKittrick, Valley Acres, Derby Acres, Fellows, Ford City, Taft, Maricopa, New Cuyama, and smaller communities falling within this range but not specifically identified. In the following tables, these data are generally aggregated and, where available, data for individual communities have been cited.

III.T.2.1 Population

Population growth over the past three decades has been consistent and has ranged from somewhat to very rapid for Kern, San Luis Obispo, Santa Barbara, and Ventura counties. Population growth in all of these counties has been faster than the rest of the U.S. and, for all except Santa Barbara, has outpaced growth in the State of California as a whole.

III.T.2.2 Age

The median age of residents in the four counties ranged from 30 years in Kern County to 38.5 years in San Luis Obispo County.

III.T.2.3 Race/Ethnicity

Kern County has a higher percentage of persons identifying themselves as of Hispanic or Latino origin than the other counties. San Luis Obispo County’s population predominantly consists of those identifying themselves as white, whereas in other counties this group comprises approximately half the total population. All counties had relatively low populations of those identifying themselves as Black or African American, and American Indian and Alaska Native.

III.T.2.4 Number of Households, Household Size, and Income

Average household size has decreased slightly in Kern County since 2000, increased in San Luis Obispo and Santa Barbara counties, and remained constant in Ventura County. From 2000 to 2006, median housing values for owner-occupied units rose dramatically in all counties, with the largest percentage increase in Kern County (63.4 percent). The number of housing units increased over that same timeframe in each of the four counties, again with the largest increase in Kern County, at 31,087, and the smallest in Santa Barbara County, with 7,979.

In 2006, median household income ranged from \$35,160 in the Carrizo Trade Area to \$72,107 in Ventura County. Per capita income followed a similar pattern. The Carrizo Trade Area also had the highest percentage of families with income below the poverty level at 18.3 percent, with Kern County at 17.1 percent, Santa Barbara County at 9.5 percent, and San Luis Obispo and Ventura counties at 6.2 and 6.4 percent, respectively. These figures compare with 9.8 percent for the nation as a whole, and 9.7 percent over the entire State of California.

In 2004, 32 percent of all personal income in Kern and San Luis Obispo counties was derived from non-labor sources, as compared with 25 percent in Ventura County and 36 percent in Santa Barbara County. Dividends, interest, and rent accounted for 13 percent of non-labor income in Kern County, and 15 percent in San Luis Obispo County, whereas in Santa Luis Obispo and Santa Barbara counties these categories were 23 percent and 24 percent, respectively.

III.T.2.5 Education

All four counties and the Carrizo Trade Area have high percentages of persons, aged 25 and over, having achieved a high school diploma or equivalent. Kern County and the Carrizo Trade Area are notably lower for persons holding bachelor's degrees or higher.

III.T.2.6 Employment of Residents

Employment patterns for the Carrizo Trade Area are based on 2007 estimates and are not available for all categories. Based on available data, however, it is estimated that there are 12,594 persons age 16 and over in the Trade Area. Of these, 6 are in the Armed Forces, 5,824 are in civilian employment, and 807, or 6.4 percent, are unemployed. There are approximately 5,957 persons not in the labor force. Based on these data, the largest sector for employment for residents of all counties was government, followed by retail trade and agriculture in Kern County, leisure and hospitality in San Luis Obispo County, professional and business services in Santa Barbara and Ventura counties, and manufacturing in Ventura County.

III.T.2.7 Environmental Justice

Minorities and Minority Populations

The social and economic context within which the Monument is located is relatively diverse and varies among the four counties and the Carrizo Trade Area. The data from 2006/2007 indicate that the majority of residents categorize themselves as white, ranging from 42.7 percent in Kern County to 77.1 percent in the Carrizo Trade Area. Other races represent a significantly smaller segment of the population. A substantial portion (45.2 percent) of the population in Kern County identify themselves as Hispanic or Latino origin in combination with other races, with 38.2 and 36.5 percent in Santa Barbara and Ventura counties, respectively. In San Luis Obispo County and in the Carrizo Trade Area, only 18.3 and 25.5 percent of the population identify themselves as being of Hispanic or Latino origin.

Approximately 67,486 persons, or about 11.6 percent of the total population, identified themselves as Black and African American. Fewer than 10,000 persons, or approximately 3.1 percent of the total population, identified themselves as American Indian and Alaska Native.

Low Income Populations

A diverse range of incomes also characterizes the regional and local population. Median incomes per household in 2006 ranged from \$35,160 in the Carrizo Trade Area to \$72,107 in Ventura County. In Kern County, median income was \$43,106 per household, and in San Luis and Santa Barbara counties, it was \$50,209 and \$53,477, respectively. Based on U.S. Census Bureau estimates, approximately 18.3 percent of families in the Carrizo Trade Area had an income that was below poverty level. For Kern County as a whole, this figure is 17.1 percent, while Santa Barbara County more closely matched the national average, at 9.5 percent. San Luis Obispo and Ventura counties are estimated to have had 6.2 and 6.4 percent families living below the poverty level, respectively.

Native American Populations

Data indicate that individual Native Americans (and Alaskan Natives) account for a small percentage of the regional population. Federally recognized groups occupy the Santa Ynez Band of Mission Indians (Chumash) reservation in Santa Barbara County, located many miles southwest of the Monument, near Santa Ynez. Other federally recognized groups include residents of the Tule River Reservation near

Porterville, to the northeast, and the Santa Rosa Rancheria near Lemoore, to the north; both are Yokuts reservations. There are also a number of non-federally recognized groups of Chumash, Yokuts, and Salinan. These groups have characteristically expressed an active interest in the management of the Monument and are represented on the Advisory Committee (see Section III.T.1.2).

People of the Chumash tribe, as well as Yokuts and Salinan, utilize areas within the Monument for traditional uses including plant gathering and ceremonial activities. Policies established by BLM and the Forest Service Pacific Southwest Region in 2006, in coordination with federal tribes and non-federally recognized Native Americans in California, ensure access by traditional native practitioners to plants. The policy also ensures that management of these plants promotes ecosystem health for BLM- and Forest Service-managed lands. BLM management units are encouraged to support and incorporate into their planning traditional native and native practitioner plant-gathering of culturally utilized plants for traditional use.

III.T.3 Local Economic Activity Affected by CPNM Management

III.T.3.1 Non-Market Values

The most important socio-economic factors associated with the CPNM are the non-market values offered by the conservation and management of the Monument's lands as a pristine and remote undeveloped area, with unique and sensitive natural and cultural resources.

III.T.3.2 Land Value and Income Enhancement Values

These non-market resources enhance the value of other land in the region. Although difficult to quantify, this value-added has been established through various empirical studies. Open space is generally seen as an enhancement value, especially if the open space lands are not intensively developed for recreation purposes (Fausold and Lilieholm 1996).

Research conducted by the Sonoran Institute shows that individual income growth benefits from the presence of publicly owned lands. In counties with more than 60 percent of lands managed by federal agencies such as the Forest Service, BLM, and National Park Service, personal income has grown at a faster rate than in counties where less than 10 percent of lands are publicly owned. This trend is even more notable in rural counties where public lands are conserved and protected from development. In counties with more than 60 percent of federal lands designated as wilderness, national parks, wildlife refuges, national Monuments, or other protected status, data show there was a 66 percent increase in average annual income growth over the 30-year period from 1970 to 2000 (Sonoran Institute 2006; Rasker et al. 2004).

III.T.3.3 Monument Visitor Use Patterns

Estimates of visitorship to the Monument are based on records of visitors to the visitor's center, as well as on traffic data collected at the primary entrances to the Monument and extrapolated using an average per vehicle occupancy of 2.5 persons. Based on these data, BLM estimates that an average of 38,700 persons visited the CPNM in 2002 and 2003, of which an average of 3,372 stopped at the visitor's center. Visitorship to the Monument increased to 87,040 in 2007.

For visitors who signed the registry in 2002–2003, about 34.7 percent identified their place of residence as the Central Coast; BLM estimates that about one-half of these were from San Luis Obispo County. Another 20.5 percent came from northern California, while 17.8 percent came from Bakersfield and the Central Valley. Visitors from southern California accounted for another 17.9 percent, and out of state or

foreign visitors represented about 9.0 percent. Visitorship is typically highest during March and April, during wildflower season, with about 56 percent of visitors counted at the visitor's center during those months (B. Wick, BLM, personal communication, 2007).

III.T.4 Market and Commodity Values

III.T.4.1 Land Use and Development

Land uses within the four-county area that define the social and economic context of the Monument are varied. Within portions of each of the four counties, there are high-density urban and suburban residential developments, and commercial and industrial centers. The nearest urbanized areas are Bakersfield, approximately 75 miles to the east, and San Luis Obispo, approximately 60 miles to the west.

Within an approximately 10-mile radius of the Monument itself, total population has been estimated at approximately 16,736 persons, with the largest concentrations in Taft, Ford City, and Maricopa (Claritas, Inc. 2007). Land uses in this area are primarily single-family residential development, agricultural and ranching operations, and energy production, primarily oil and gas fields. Agriculture and oil and gas production are among the primary economic activities of the area, further discussed below. The Kern County General Plan designates a total of 3,568,697 acres, or approximately 67 percent of land designated under the plan, with the "Resource" designation, which includes petroleum and wind (Kern County 2005).

Development constraints in the area surrounding the Monument have historically included remoteness, availability of water, and, to some extent, access (San Luis Obispo County 1980). Emerging issues include potential conflicts related to conversion of agricultural lands to non-agricultural uses and land use compatibility issues associated with these conflicts (Kern County 2005). Topography and risk from seismic activity may also serve as constraints in some areas.

Lands within the Monument are primarily undeveloped and vacant, with limited paved public roads. There are fewer than 15 structures over the total Monument area, including historic ranch buildings and the Goodwin Education Center. These lands are also used for livestock grazing, mineral extraction (to a limited extent), and recreational uses.

As previously discussed, it is well understood that the presence of conserved open space lands, especially those under federal management, enhances the value of nearby lands. The non-market values described above distinguish the CPNM as a vital regional and local natural asset. The success of conservation efforts such as the San Joaquin Valley Recovery Plan depends on the continued protection of the sensitive biological resources found in the Monument. Based on the trends and patterns discussed in Section III.T.3, the preservation of the CPNM's remote and pristine nature may well be considered as a potential growth attracter, albeit indirectly, to developable lands in neighboring valleys, and may also provide a context for development planning on those lands.

III.T.4.2 Mineral Estates

Within the Monument, approximately 56 percent of the mineral estate is privately owned. Valid leases, claims, and other rights that existed as of January 17, 2001, may be developed, and any proposed activities would be subject to applicable CEQA and NEPA environmental processes, as appropriate. There are currently nine active oil and gas leases. Currently there is only one active production area, located near the southwest boundary of the Monument, and test wells have indicated limited potential for commercial quantities of oil elsewhere in the area. However, as oil prices increase, reserves that are

currently considered uneconomical may become economically viable for future development (BLM 1996; personal communication, J. Prude, BLM petroleum engineer, 2008).

III.T.4.3 Agriculture

Agriculture has historically been and currently is a primary and vital economic activity in the region (Kern County 2005). In 2006, 44,600 persons, or 16.1 percent of the civilian labor force in Kern County, were employed in agriculture, while in Santa Barbara and Ventura counties there were 15,500 and 22,800 persons employed in agriculture, respectively. In San Luis Obispo County, this industry accounted for only 4,300 people in the civilian workforce, or 3.2 percent (California Department of Finance 2007).

Livestock grazing and ranching have been of particular importance in the region. Based on U.S. Census Bureau agriculture data for 2002, there were about 2.7 million acres in farms in Kern County, of which 1.6 million acres were in pastureland and rangeland. For San Luis Obispo, there were 1.3 million acres in farms and 1.0 million acres in pastureland and rangeland (USDA 2002). Cattle sales in Kern County in 2002 yielded approximately \$88.3 million in revenues, as compared with approximately \$21.7 million in San Luis Obispo County in the same year (USDA 2002).

Grazing Fees and Contributions

BLM calculates federal grazing fees in March of each year, based on a formula that is calculated using the 1966 base value of \$1.23 per animal unit month (AUM) (the amount of forage needed to sustain one cow, five sheep, or five goats for one month) for livestock grazing on public lands in western states. Annual adjustments are based on three factors: current private grazing land lease rates, beef cattle prices, and the cost of livestock production. The grazing fee rate was \$1.79 per AUM in 2005 (BLM 2005), \$1.56 per AUM in 2006 (BLM 2006), and was at its minimum value of \$1.35 per AUM in 2007.

In compliance with the *Taylor Grazing Act* (Section 10), BLM shares grazing receipts from Section 15 grazing leases equally with local governments where they are collected. For the state fiscal year 2003–2004, Kern County received \$7,347 in Section 15 lease fees, and San Luis Obispo County received \$3,208. For fiscal year 2004–2005, Kern County reported \$6,996 and San Luis Obispo County \$5,081. These figures increased in 2005–2006 to \$7,603 for Kern County, and decreased for San Luis Obispo County, to \$4,266. It should be noted that these revenues come from all BLM Section 15 grazing leases in these counties, not only those within the CPNM (K. Doran, BLM, personal communication, 2008).

There are no direct grazing fees associated with the free use grazing permits on the valley floor/foothill region of the Monument. Permittees under these authorizations have agreed to voluntarily contribute to a BLM fund for the construction and maintenance of range improvements or facilities to support the vegetation management program within the Monument. Contributions to the Carrizo Grazing Facility Fund are determined by actual AUMs of livestock use and AUM rates are based on a modified federal grazing fee structure. These contributions are variable per year based on how much pastureland is available and conditions in the region. Contributions to the fund in fiscal year 2003–2004 were approximately \$2,629.27, in fiscal year 2004–2005 were \$0.00, and in fiscal year 2005–2006 were approximately \$5,585.29.

Grazing Permit and Real Estate Value

Generally, there is a correlation between ranch land values and federal grazing permits, with ranches that hold such permits having a higher value. This value is based on the premise that the permit's value reflects, to some extent at least, the capitalized difference between the grazing fee and the competitive market value of federal forage. It also reflects the requirement for the permittee to hold private base

property to which the federal permitted use is attached, giving the base property holder priority for renewal over other potential applicants. This value is recognized by lending institutions during a loan process and by the Internal Revenue Service when a property transfer occurs.

Permit values fluctuate based on market forces but generally depend on the number of AUMs and other terms of the lease or permit. Permit values may vary widely, depending on the location and the estimated average value of replacement forage. The 2006 average fee per AUM on private lands ranged from a low of \$8.00 to \$22.50 over 16 western states, with an average of \$13.34. The rate assessed in California in 2006 was \$15.40 per AUM. This is also the rate assessed by BLM for non-willful unauthorized grazing use in the state (BLM 2006). This figure is used here to estimate a conservative value of all Section 15 leases in the CPNM. Based on 8,634 AUMs, the total annual grazing value of all traditional leases in the CPNM would be \$132,964. It should be noted that the issuance of a grazing permit or grazing lease does not create any right or title to U.S. interests for the permittee or lessee.

Although not attached to private land base properties like Section 15 grazing leases, free use grazing permits, such as those on the valley floor/foothill regions of the Monument, have capital value that allows ranchers to use permits as a form of collateral. Counties also assess the value of these permits for collecting possessory interest tax, discussed further below.

III.T.4.4 Local Government Revenues

Private landowners in the CPNM pay property tax to the county within which their holdings lie, with San Luis Obispo County receiving the most property taxes annually. Revenues from public lands in the Monument are paid to each county through payments in lieu of taxes (PILT) and possessory interest tax.

Payments in Lieu of Taxes

PILT are paid by federal agencies to local governments to compensate for the nontaxable federal lands that occur in their boundaries. These funds are appropriated annually by Congress to BLM, which then allocates payments according to a formula established in the *Payments in Lieu of Taxes Act*. These payments account for population, receipt-sharing payments, and the amount of federal land in a county. PILT payments are transferred to state or local governments, as applicable, and are in addition to other federal revenues, including those from grazing fees. For San Luis Obispo County, PILT receipts for fiscal year 2005–2006 were \$617,106, and for fiscal year 2006–2007 were \$619,602. For Kern County for the same years, PILT receipts were \$1,390,889 and \$1,383,581, respectively (USDI 2008).

Possessory Interest Tax

Federal grazing permits and leases in California are subject to possessory interest tax. State and local jurisdictions do not receive property tax revenues on public lands, as they do on private lands. However, free use grazing permits and Section 15 grazing leases, as well as mining claims and other permits that allow private citizens to use resources on publicly owned lands, are considered as the private right to the possession and use of those lands. These “rights” are taxed by the county in which the lands are located. The base rate is determined by each county’s assessment of the permit value. San Luis Obispo County and Kern County assess this tax at a base rate of approximately 1.1 percent of the assessed value of the permit (C. Dines, County of San Luis Obispo Auditor/Controller’s Office, personal communication, 2008; D. Stevenson, Kern County Administrative Office, Budget and Finance, personal communication, 2008).

III.U Solid and Hazardous Waste

Solid and hazardous waste management practices on BLM lands are regulated under the following U.S. laws, with implementing regulations in the identified sections of the CFR:

- *Clean Air Act*, as amended (40 CFR 50-80, 61)
- *Clean Water Act* (40 CFR 110-140, 400-470)
- *Safe Drinking Water Act* (40 CFR 140-149)
- *Toxic Substances Control Act* of 1976 (40 CFR 700-750, 760s, 790-799)
- *Federal Insecticide, Fungicide and Rodenticide Act* (40 CFR 150-186)
- *Resource Conservation and Recovery Act* (40 CFR 260-263, 264-270)
- *Hazardous Materials Transportation Act* (49 CFR 170s)
- *Occupational Safety and Health Act* (29 CFR 1910)
- *Asbestos Hazards Emergency Response Act* of 1986 (40 CFR 763)
- *Comprehensive Environmental Response, Compensation, and Liability Act*, as amended (40 CFR 300)
- *Superfund Amendments and Reauthorization Act* of 1986 (SARA)
- *Emergency Planning and Community Right to-Know Act* of 1986 (SARA Title III) (40 CFR 350, 355, 370, 372)
- *Federal Food Drug and Cosmetic Act* of 1938
- *Pollution Prevention Act*
- NEPA
- any other relevant federal, state, or local laws or regulations

BLM currently complies with the pertinent laws and regulations regarding solid and hazardous waste disposal within the Monument. Non-hazardous solid waste is routinely collected from receptacles and facilities by BLM personnel or contractors and transported to a properly licensed and operated waste transfer station. BLM does not burn waste or dispose of waste on-site. Occasionally, illegal dumping occurs on public land within the Monument. This illegal waste is disposed properly by BLM and, when feasible, the responsible party is identified and legal remedies are sought.

The military installation known as the Soda Lake AGGR consists of 15 sections of BLM and private land (approximately 9,600 acres) in the northern part of the CPNM. These lands were withdrawn by the U.S. Department of Defense in 1944 for use as air-to-ground strafing and bombing training targets. Used only for a few years, these 15 sections of land were transferred back to BLM and the private land owners by the Department of Defense in 1947. BLM has since purchased the private lands in the former Soda Lake AGGR, and all 15 sections of the former Soda Lake AGGR are now owned as public land and managed by BLM as part of the CPNM.

The Soda Lake AGGR was composed of one strafing range, one skip bomb range, and one bomb target range. The U.S. Army Corps of Engineers has conducted two on-site reconnaissance surveys of this withdrawn facility. The first was conducted in 1996 to survey the site for unexploded ordnance, and second was in September 2007 to sample the AGGR for chemical contamination. Small arms ordnance and practice bombs have been identified on the ground at all three ranges. As with all former target ranges, there is a potential for the continued presence of unexploded ordnance and chemical contamination.

If and when ordnance or chemical hazards that endanger the public are identified, normal and appropriate emergency response actions would immediately be taken in accordance with the policies of BLM and San Luis Obispo County (such as closure of hazard area, public notification, removal of hazard). Since the

need for or specific details of such actions are speculative, they are not discussed further in the RMP; however, an appropriate level of NEPA review would be undertaken if the need for a response action is identified.

No landfills or other hazardous waste sites are known to occur on public lands in the CPNM. Currently, the volume of hazardous waste that is generated in the CPNM does not exceed the threshold allowed for a conditionally exempt small quantity generator. The small volume of hazardous waste that is generated at the CPNM is either recycled or disposed through San Luis Obispo or Kern County's Small Quantity Generator Program. The hazardous waste stream consists of used motor oil and occasional expired or obsolete hazardous materials such as paint, solvents, batteries, and lubricants. These hazardous materials are recycled using BMPs, when possible.

Personnel associated with the CPNM continue to identify less-toxic alternatives to hazardous materials that have been used traditionally. As required by the Occupational Safety and Health Administration's Hazard Communication Standard (29 CFR 1910.1200), material safety data sheets are obtained and made available where potentially hazardous chemicals are used or stored.

Non-hazardous waste streams (such as paper, aluminum, and glass) are recycled when it is economically feasible. However, most CPNM public facilities are not currently equipped with receptacles for recyclable materials. In summary, the hazardous and solid waste management program at the Monument is implemented following standard federal and state policies, and there are no issues that are within the scope of the RMP. Therefore, hazardous and solid wastes are not addressed further under the RMP alternatives or impact discussion.

Chapter IV. SUPPORTING MATERIALS

This chapter provides the information used to develop the Record of Decision (ROD) and the Resource Management Plan (RMP) for the Carrizo Plain National Monument.

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Chapter IV. SUPPORTING MATERIALS

This chapter provides the references cited throughout this document (Section IV.A) and a list of acronyms used (Section IV.B).

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IV.B Acronyms

ACEC	area of critical environmental concern
AGGR	Air to Ground Gunnery Range
ARPA	<i>Archaeological Resources Protection Act</i>
ATV	all-terrain vehicle
AUM	animal unit month
BLM	Bureau of Land Management
BMP	best management practice
CaCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	<i>California Environmental Quality Act</i>
CFR	Code of Federal Regulations
CPNM	Carrizo Plain National Monument
EIS	environmental impact statement
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FLPMA	<i>Federal Land Policy and Management Act</i>
FMP	fire management plan
FMU	fire management unit
GIS	geographic information system
GPS	global positioning system
kV	kilovolt
MAC	Monument Advisory Committee
MIST	minimum impact suppression tactics
NEPA	<i>National Environmental Policy Act</i>
NHPA	<i>National Historic Preservation Act</i>
NLCS	National Landscape Conservation System
NRHP	National Register of Historic Places
OHV	off-highway vehicle
PILT	payments in lieu of taxes
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
PM ₁₀	particulate matter less than 10 micrometers in diameter
RMP	resource management plan
ROD	record of decision
SHPO	State Historic Preservation Officer
SOP	standard operating procedure
SRMA	special recreation management area

TNC	The Nature Conservancy
USFWS	U.S. Fish and Wildlife Service
VRI	visual resource inventory
VRM	visual resources management
WSA	wilderness study area
WWII	World War II

ATTACHMENTS

- 1 Monument Proclamation**
- 2 Implementation Decisions**
- 3 Standard Operating Procedures and Implementation Guidelines for Projects Affecting the Biological Environment**
- 4 Minerals Standard Operating Procedures / Best Management Practices / Implementation Guidelines and Conditions of Approval**
- 5 Conservation Target Table**
- 6 Management of Lands with Wilderness Characteristics**
- 7 Supplementary Rules for Public Use**

ATTACHMENTS

1	Monument Proclamation
2	Implementation Decisions
3	Standard Operating Procedures and Implementation Guidelines for Projects Affecting the Biological Environment
4	Mineral Standard Operating Procedures / Guidelines
5	Management Policies / Implementation Guidelines and Conditions of Approval
6	Conservation Target Table
7	Management of Lands with Wilderness Characteristics
8	Supplementary Rules for Public Use

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Attachment 1

Carrizo Plain National Monument Presidential Proclamation

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Attachment 1

Carrizo Plain National Monument Presidential Proclamation

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release:

January 17, 2001

ESTABLISHMENT OF THE CARRIZO PLAIN NATIONAL MONUMENT BY THE PRESIDENT OF THE UNITED STATES OF AMERICA A PROCLAMATION

Full of natural splendor and rich in human history, the majestic grasslands and stark ridges in the Carrizo Plain National Monument contain exceptional objects of scientific and historic interest. Since the mid-1800s, large portions of the grasslands that once spanned the entire four hundred mile expanse of California's nearby San Joaquin Valley and other valleys in the vicinity have been eliminated by extensive land conversion to agricultural, industrial, and urban land uses. The Carrizo Plain National Monument, which is dramatically bisected by the San Andreas Fault zone, is the largest undeveloped remnant of this ecosystem, providing crucial habitat for the long-term conservation of the many endemic plant and animal species that still inhabit the area.

The monument offers a refuge for endangered, threatened, and rare animal species such as the San Joaquin kit fox, the California condor, the blunt-nosed leopard lizard, the giant kangaroo rat, the San Joaquin antelope squirrel, the longhorn fairy shrimp, and the vernal pool fairy shrimp. It supports important populations of pronghorn antelope and tule elk. The area is also home to many rare and sensitive plant species, including the California jewelflower, the Hoover's woolly-star, the San Joaquin woolly-threads, the pale-yellow layia, the forked fiddleneck, the Carrizo peppergrass, the Lost Hills saltbush, the Temblor buckwheat, the recurved larkspur, and the Munz's tidy-tips. Despite past human use, the size, isolation, and relatively undeveloped nature of the area make it ideal for long-term conservation of the dwindling flora and fauna characteristic of the San Joaquin Valley region.

The Carrizo Plain National Monument also encompasses Soda Lake, the largest remaining natural alkali wetland in southern California and the only closed basin within the coastal mountains. As its name suggests, Soda Lake concentrates salts as water is evaporated away, leaving white deposits of sulfates and carbonates. Despite this harsh environment, small plant and animal species are well adapted to the setting, which is also important to migratory birds. During the winter months the lake fills with water and teems with thousands of beautiful lesser sandhill cranes, long-billed curlews, and mountain plovers.

The Carrizo Plain National Monument owes its existence to the geologic processes that occur along the San Andreas Fault, where two of the Earth's five great tectonic plates slide past one another, parallel to the axis of the Plain. Shifting along the fault created the Plain by rumpling the rocks to the northeast into the Temblor Range and isolating the Plain from the rest of the San Joaquin Valley. The area is world-famous for its spectacular exposures of fault-generated land forms. Stream valleys emerge from the adjacent mountains, only to take dramatic right-angle turns where they intersect the fault. Ponds and sags form where the ground is extended and subsides between branches of the fault. Benches form where the fault offsets valley walls. Many dramatic landscape features are products of the interplay between very

rapid fault movement and slower erosion. The dry climate of the area produces low erosion rates, thereby preserving the spectacular effects of fault slip, folding, and warping. On the Plain, these fault-related events happen intermittently, but with great force. In 1857, the strongest earthquake in California's recorded history ripped through the San Andreas Fault, wrenching the western side of the Carrizo Plain National Monument thirty-one feet northward.

The area is also distinguished for its significant fossil assemblages.

The Caliente Formation, exposed on the southeast side of the Caliente Range, is host to abundant and diverse terrestrial fossil mammal remains of the Miocene Epoch (from 13 million to 25 million years ago). Fossils of five North American provincial mammalian ages (Arikareean, Hemingfordian, Barstovian, Clarendonian, Hemphillian) are represented in sedimentary rocks in that formation. These terrestrial fossil remains are interlaced with marine sedimentary rocks bearing fossils of mollusks, pectens, turitellas, and oysters.

In addition to its geologic and biological wealth, the area is rich in human history. Archaeologists theorize that humans have occupied the Carrizo Plain National Monument area since the Paleo Indian Period (circa 11,000 to 9,000 B.C.). Bedrock mortar milling features, village middens, and elaborate pictographs are the primary manifestations of prehistoric occupation. Some of these, such as the Painted Rock and Sulphur Springs rock art sites, are recognized as world class. European expeditions through the area date back to the late 1700s, with settlement beginning in the 1850s. Livestock ranching, farming, and mining activities in the last century and a half are evidenced by numerous artifacts and historic ranch properties within the area.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it would be in the public interest to reserve such lands as a national monument to be known as the Carrizo Plain National Monument:

NOW, THEREFORE, I, WILLIAM J. CLINTON, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as the Carrizo Plain National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Carrizo Plain National Monument" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 204,107 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument. For the purpose of protecting the objects identified above, the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.

Attachment 1: MONUMENT PROCLAMATION

Lands and interests in lands within the proposed monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

The Secretary of the Interior shall manage the monument through the Bureau of Land Management, pursuant to applicable legal authorities, to implement the purposes of this proclamation.

The Secretary of the Interior shall prepare a management plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

The establishment of this monument is subject to valid existing rights.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of California with respect to fish and wildlife management.

There is hereby reserved, as of the date of this proclamation and subject to valid existing rights, a quantity of water sufficient to fulfill the purposes for which this monument is established. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation.

Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this seventeenth day of January, in the year of our Lord two thousand one, and of the Independence of the United States of America the two hundred and twenty-fifth.

WILLIAM J. CLINTON

(The Secretary of the Interior, Department of the Interior, United States of America, do hereby proclaim and designate the Carrizo Plain National Monument, California, as a national monument, to be known as the Carrizo Plain National Monument, and for other purposes, as hereinafter provided.)

The Secretary of the Interior, Department of the Interior, United States of America, do hereby proclaim and designate the Carrizo Plain National Monument, California, as a national monument, to be known as the Carrizo Plain National Monument, and for other purposes, as hereinafter provided.

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Attachment 2 Implementation Decisions

Biological Resources

Attachment 2 Implementation Decisions

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Attachment 2

Implementation Decisions

The following Implementation Decisions have been excerpted from the Approved RMP, where they are identified with an "I" designation. The Record of Decision (ROD) approves these actions. They may be implemented following the 30-day appeal period described in the ROD. Other implementation-level actions, which are not listed below, have an asterisk (I*) where they are included in the ROD; this indicates that the action has not been analyzed at a level that would allow for direct implementation from the plan and additional environmental analysis would be completed prior to "on-the-ground" implementation. Prior to being initiated, all implementation actions will be subject to the appropriate level of NEPA review.

Biological Resources

- *Action BIO-7(I)*: Design other management actions to avoid direct impacts. If a threat is observed, take action to protect the species or habitat. Reduce competition from weedy species. Modify, restrict, or prohibit livestock grazing to protect rare plant habitat. If necessary, fence known sites and adjacent suitable habitat to preclude damage (such as from illegal off-road vehicle activity).
- *Action BIO-9(I)*: Identify and map core areas for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel (core area species). Preliminary core areas are shown on Map 3-2, Special Status Animals. Focus habitat management for giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, San Joaquin antelope squirrel, and mountain plover on these core areas. Manage core areas so they provide a "safety net" to maintain viable populations in all years (within management capability) and to prevent core area species from disappearing from the Monument. Core areas are determined by having persistent populations of the core area species, having suitable habitat in most years, being of a size that can be effectively treated with vegetation / habitat management prescriptions when required, and being of a size that has a high likelihood of maintaining a viable population of the core area species when vegetation management is applied.
- *Action BIO-10(I)*: Monitor populations to determine trends and further define minimum population threshold values to identify when to take management actions. If populations approach target minimums, initiate management actions depending on species' characteristics and specific factors influencing population trends as identified in the Conservation Target Table.
- *Action BIO-12(I)*: Manage core area habitat to promote the more open, desert-like structure favored by the core area species. In those years when core area species populations are low and vegetation structure is above optimum, as identified in the Conservation Target Table (Attachment 5), use the vegetation management tools included in the Vegetation Management Toolbox.
- *Action BIO-19(I)*: Identify and map core areas for mountain plover based on historical use patterns. Preliminary core areas are shown on Map 3-2, Special Status Animals. Focus habitat management for mountain plover to core areas. Manage core areas so that a minimum of one area of suitable habitat is provided within the Monument boundary.
- *Action BIO-29(I)*: Maintain suitable habitat in the Temblor Range subregion. Manage public use to prevent habitat degradation and fragmentation.
- *Action BIO-41(I)*: Ensure that BLM actions and authorizations are designed to avoid impacts to vernal pools. Manage vernal pools that provide longhorn fairy shrimp, vernal pool fairy shrimp, and spadefoot toad habitat within the North Carrizo and South Carrizo Vernal Pool Core Areas consistent with the Vernal Pool Recovery Plan.

- *Action BIO-44(I)*: Establish and maintain non-managed areas to compare the effects of purely natural processes with those influenced by agency management actions. Investigate the potential of setting aside “hands-off” areas where little to no management actions would occur. One management exception may be for the treatment of noxious or problematic weedy species.
- *Action BIO-55(I)*: If necessary to prevent target species populations from disappearing from the Monument, take action in non-core habitat as well as in core habitat as identified in Attachment 5, Conservation Target Table. The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in Figure 2.3-1. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.
- *Action BIO-58(I)*: Maintain and improve areas of pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions adequate to support 250 pronghorn. Allow livestock grazing in key pronghorn habitat only as identified in Attachment 5, Conservation Target Table.
- *Action BIO-73(I)*: Livestock grazing within the Carrizo Plain North subregion will be done in a manner that minimizes impacts to shrubs, tall forbs, and perennial native grasses as identified in the Conservation Target Table.
- *Action BIO-74(I)*: Discourage use of polypropylene twine at gates and other facilities in the Monument to prevent its use as a nesting material and potential entanglement of birds. Remove and replace existing polypropylene twine at gates and facilities.
- *Action BIO-77(I)*: Control and eliminate, when possible, nonnative animals such as wild pigs and honeybees that may have negative impacts on habitat or other species. Potential methods to control pigs include hunting, fencing, and trapping. Potential methods to control honeybees include physical removal of hives, entombment, traps, insecticides, and poison bait stations.
- *Action BIO-80(I)*: Take protective measures if pets from visitors or private lands are causing wildlife depredation or other ecological damage. Examples: Require pets to be leashed or controlled at all times, require pet owners to remove fecal material, and contact owners if free-roaming pets from private lands are causing impacts. Pets shall remain leashed at all developed sites including visitor centers, interpretive overlooks, and camping areas.
- *Action BIO-81(I)*: Follow integrated pest management principles (BLM 1992). Each infestation will be evaluated as to the best control methods. Criteria include growth characteristics, seed production and dispersal, life history stage, size of infestation, difficulty of control, and previous control methods. Treatment will use the appropriate method(s), as identified in Table 2.4-2, Management Toolbox. Monitor to determine effectiveness of control measures.
- *Action BIO-82(I)*: Monitor to detect new nonnative populations and aggressively work to eliminate founder populations before they can spread.
- *Action BIO-83(I)*: Work to eradicate target weed species such as yellow star thistle, bull thistle, tamarisk, hoary cress, and Russian knapweed (Table 3.2-4). Control and eradicate tree-of-heaven and, for plantings that have cultural or biological importance, replace with native or historically acceptable non-invasive species. Work on landscape-wide methods for controlling widespread species such as Russian thistle and horehound.
- *Action BIO-84(I)*: On a landscape level, design and implement measures to suppress nonnative annual grasses and herbs. Seed with native species, as applicable.

- *Action BIO-85(I)*: Implement measures to minimize the spread of weeds by livestock and equestrian activities (for example, encourage weed-free husbandry, prohibit cleaning of horse trailers on the Monument, encourage the use of weed-free hay, and monitor corrals and holding pens).
- *Action BIO-86(I)*: Remove nonnative weeds and restore native vegetation to disturbed areas that were created by past grazing activities. These include areas around troughs, corrals, and other locations where intense livestock presence resulted in a replacement of native vegetation with nonnative species such as wild barley, bromes, mustards, cheeseweed, and horehound.
- *Action BIO-87(I)*: Manage fire (prescribed and wildfire) in the Caliente Mountains North subregion to mimic natural return interval.
- *Action BIO-88(I)*: Use fire as a habitat management tool to promote native species.
- *Action BIO-89(I)*: Take measures to increase our understanding of native people's historic use of fire and historic fire return intervals to aid in current management applications.
- *Action BIO-90(I)*: Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, and management needs.
- *Action BIO-91(I)*: Identify target inholdings. Encourage sale or transference of target properties through a variety of methods/incentives.
 - Primary focus would be to acquire property that supports habitat and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.
 - Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and playa system) that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel), or that support other important CPNM species (spadefoot toads, fairy shrimp, mountain plover, and rare plants).
- *Action BIO-92(I)*: Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.
- *Action BIO-93(I)*: Target other inholdings that may have management needs or risk of development or occupancy.
- *Action BIO-94(I)*: Develop and maintain a geographic information system (GIS) database showing the location of target resources to facilitate acquisition efforts

Fire and Fuels Management

- *Objective FIRE-3(I)*: Follow current wildland fire objectives in the fire management plan:
 - Target wildfire acres burned per decade: approximately 10,000 acres.
 - Target individual wildland fire size: 100 acres or less 80 percent of the time.
 - Fires on the valley floor burning in grassland areas away from sensitive cultural sites and fire-intolerant shrub areas may be managed using a confine strategy, burning to the nearest roads. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 1,000 acres.
- *Action FIRE-14(I)*: Apply the response to wildland fire using the following assumptions:
 - Actively suppress fires that threaten life, facilities, or private property.

- Actively suppress fires that threaten fire sensitive natural or cultural resources, such as saltbush or other vulnerable shrub communities, Alvord and blue oak stands, and National Register properties. Active suppression could include aerial attack, mobile attack, handline construction, or dozerline construction (outside of sensitive cultural site areas). Utilize mobile attack in preference to more disturbing methods such as dozerline construction.
 - In other areas, apply a confine strategy, where fires are suppressed when they reach the nearest existing control feature, such as a road.
 - Utilize MIST for fires burning within the Caliente Mountain WSA (17,984 acres). Use MIST to the extent possible, considering other values at risk to be protected, in the remaining primitive recreation management zones, which include an additional 44,471 acres.
 - While considering the above assumptions, the incident commander retains the authority during initial attack to undertake whatever actions are deemed appropriate based on current and anticipated conditions and resource availability (while considering restrictions to protect sensitive natural and cultural resources). For example, a confine strategy may not be appropriate in times of extremely hot and dry conditions or when multiple incidents in a geographic area have depleted available suppression resources.
- *Action FIRE-15(I):* Coordinate with biological specialists to utilize prescribed fire to contribute to native species restoration goals and noxious weed control. Prescribed fire would also be used to return fire to its place in the ecosystem, as well as to meet fuel reduction needs. Treat up to 10,000 acres with prescribed fire each decade.
 - *Action FIRE-16(I):* Reduce fuels adjacent to structures and other improvements, as well as along major travel corridors to reduce the number of human-caused ignitions in the CPNM. Treat up to 4,000 acres per decade with non-fire fuels treatment. Treatments could include activities such as mowing along roads and providing vegetation clearance around structures.

Air Quality

- *Action AIR-12(I):* Avoid burning during high-visitor-use periods to maintain visibility and protect human health and safety. (Examples of predictable high-use days include three-day weekends, holidays, peak flowering periods, and hunting season openings.)

Soils

- *Action SOIL-2(I):* Limit fugitive dust pollution by reducing disturbance to soils.

Water Resources

- *Action WTR-9(I):* Determine if any existing wells in the CPNM are suitable for water level and water quality monitoring.

Geology and Paleontology

Objective GP-5(I): Focus public education and interpretation of geological and paleontological resources at field locations.

Cultural Resources

Objective CUL-4(I): Provide for the removal of invasive nonnative plants while retaining the integrity of historic property landscapes.

Objective CUL-10(I): Focus cultural and natural history interpretive and education awareness information at on-site field locations or an appropriate viewing distance with less emphasis on multiple indoor public facilities.

Objective CUL-12(I): Recognize the importance of preserving historic ranching and farming buildings and structures in the Monument.

Visual Resources

- *Action VRM-1(I):* Complete visual contrast ratings for all proposed surface or visually impacting projects to ensure they meet VRM class objectives.
- *Action VRM-4(I):* Limit exterior lighting of BLM administrative facilities to the minimum necessary for safety and security. Use lighting types and shields that minimize light pollution.
- *Action VRM-5(I):* Conduct visual contrast ratings and ensure that all projects meet VRM Class 1 requirements.
- *Action VRM-6(I):* Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class II objectives.
- *Action VRM-8(I):* Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class III objectives.

Wilderness Study Areas and Other Lands with Wilderness Characteristics

- *Action WLD-5(I):* Routes located within areas to be managed for wilderness characteristics will be used for administrative purposes only when non-motorized access is not feasible for specific projects (such as repairs that require heavy tools and materials). A minimum requirements analysis will be used to determine if use of mechanized equipment is appropriate. Closed routes will be rehabilitated or converted into non-mechanized trails.

Livestock Grazing

- *Action GRZ-2(I):* Apply the relevant Secretary-approved Central California Rangeland Health Guidelines for Grazing Management as implementation is described in the Record of Decision of 1999 to grazing authorizations on all areas.
- *Action GRZ-7(I):* Apply the relevant Grazing Management Guidelines for the Carrizo Plain National Monument (see the Conservation Target Table, Attachment 5) to all grazing authorizations.

Recreation and Interpretation

- *Action REC-5(I):* Provide adequate and timely maintenance of all facilities and signs.
- *Action REC-6(I):* Develop a comprehensive communication program to provide information on Monument recreation opportunities:
 - Incorporate a variety of media including the internet, printed materials, and on-site signing and kiosks.
 - Incorporate visitor safety and user ethics messages.
 - Incorporate timely seasonal information such as road conditions, hunting information, and wildflower viewing updates.

- Work with regional visitor bureaus, chambers of commerce, and other gateway community outreach groups to incorporate accurate Monument information into their programs (including safety and responsible use messages).
- Action REC-7(I): Develop a driving/riding interpretive tour through the Monument.
- *Action REC-11(I)*: Develop an education and outreach program that targets motorized recreational visitors to increase resource protection and responsible use, and reduce the incidence of illegal off-road travel.
- *Action REC-12(I)*: Coordinate with the Federal Aviation Administration (FAA) and other agencies with management authority over the Carrizo Plain National Monument airspace to establish parameters for commercial touring flights over the Monument and to discourage commercial low flying aircraft. Specific restrictions and stipulations would be considered for minimum altitudes and numbers of flights to preserve the outstanding opportunities for solitude and isolation and to protect sensitive wildlife resources.
- *Action REC-13(I)*: In coordination with the FAA, set the minimum acceptable altitude for aircraft to 2,000ft without authorization from BLM for the purposes of scientific research, education, or special event. All aircraft are prohibited from landing within the Monument without specific authorization from BLM. These limitations and restrictions do not affect emergency flights and landings.
- *Allowable Use REC-1(P)*: Aerial sports, including but not limited to: hanging gliding, skydiving, paragliding, parachuting gliders and hobby aircraft, shall be managed as a discretionary action through the Special Recreation Permit process. Any person wishing to partake in an aerial sport within the Carrizo Plain National Monument will need specific authorization from BLM.

Objective REC-14(I): Provide universal access to new facilities and retrofit existing facilities to comply with the *Americans with Disabilities Act* and the recreation program objectives for each management zone. Retrofitting will also incorporate other applicable requirements such as those for historic structures.

Objective REC-18(I): Provide a comprehensive natural and cultural resource interpretive program that tells the story of the Monument and its significance.

- *Action REC-18(I)*: Develop a comprehensive natural and cultural interpretive plan for the Monument that identifies core themes, appropriate media, key audiences, priority facility needs (including potential additional visitor center space), and other components.
- *Action REC-21(I)*: Interpretive information for overlooks and other features would not be provided within this zone, and users would be expected to practice a level of self-sufficiency commensurate with wilderness access.
- *Action REC-22(I)*: Provide minimal signing within the interior of this zone only when needed for resource protection or visitor safety. Emphasis would be placed on off-site information.
- *Action REC-23(I)*: Provide amenities at designated dispersed camping areas for resource protection and to encourage use in areas that are already impacted. Facilities would retain a rustic character.
- *Action REC-24(I)*: Provide rustic informational signage on roads, trails, at trailheads, and at other facilities.
- *Action REC-29(I)*: Provide guided tours of Painted Rock and El Saucito Ranch to offer the visitor an opportunity to appreciate the range of cultural history in the CPNM.
- *Action REC-31(I)*: Provide directional and informational signage along roads and at recreational/interpretive facilities to help minimize the impact on resources and to provide for visitor safety.

Administrative Facilities

- *Action ADM-4(I)*: Maintain the facilities at the MU Ranch for employees and research housing.

Objective ADM-2(I): Use “green” building techniques that minimize use of natural resources and energy and minimize the need for commercial power and utility corridors related to Monument administrative sites.

Travel Management

- *Action TRV-1(I)*: Develop a comprehensive travel information program that includes road/trail signing, brochures, web information, and other appropriate media to inform visitors of conditions, vehicle limitations, rules, regulations, and other safety concerns.
- *Action TRV-2(I)*: Roads would be subject to temporary closure during wet periods and after washouts to minimize road damage, reduce resource impacts, and for public safety reasons. These closures would typically be short-term (closures would be implemented under the emergency closure authority of 43 CFR 8340) but would be in place until conditions improve or repairs are completed.
- *Action TRV-3(I)*: Develop a road maintenance plan that identifies and determines maintenance techniques or reconstruction opportunities to protect cultural and biological resource sites.
- *Action TRV-4(I)*: Identify and close unneeded or redundant travelways as identified on Map 4-2.
- *Action TRV-5(I)*: Upon acquisition of private land inholdings, access roads to these parcels would be evaluated for inclusion in the transportation network or closure based on the following criteria:
 - Are they compatible with the objectives of the RMP for protection of cultural and natural resources?
 - Do they provide necessary access for administrative purposes?
 - Do they enhance public recreation access or experiences identified for the respective recreation management zone?

Minerals

- *Action MNL-2(I)*: BLM inspection staff will inspect all facilities for environmental compliance on federal lands. Shut-in or abandoned wells will be inventoried and evaluated for final plugging and restoration prioritization. This inventory and evaluation will be completed within six months of the effective date of this RMP.

Lands and Realty

- *Allowable Use LR-7(I)*: BLM would survey and Monument (place survey markers) the exterior boundary of the Monument and any other boundaries within the Monument needed for administrative purposes.
- *Action LR-7(I)*: Acquire lands by donation, compensation, exchange, or purchase. Lands will be acquired based on availability, biological or cultural values, development threats, and management needs.
- *Action LR-8(I)*: Identify target inholdings. Encourage sale or transference of target properties through a variety of methods and incentives.

- *Action LR-9(I)*: Primary focus would be to acquire property that supports important cultural resources or habitat for and populations of species that are poorly represented on public lands such as sphinx moth and California jewelflower.
- *Action LR-10(I)*: Secondary focus would include properties with important ecological characteristics (for example, Soda Lake and its playa system) that are potential core areas for the San Joaquin suite of rare species (giant kangaroo rat, San Joaquin kit fox, bull-nosed leopard lizard, San Joaquin antelope squirrel), or that support other important CPNM species (spadefoot toad, fairy shrimp, mountain plover, rare plants).
- *Action LR-11(I)*: Target inholdings that are important in maintaining the linkage between the CPNM and the San Joaquin Valley.
- *Action LR-12(I)*: Target inholdings that may have management needs or risk of development or occupancy.
- *Action LR-13(I)*: Develop and maintain a GIS database showing the location of target resources to facilitate acquisition efforts.
- *Action LR-14(I)*: Work with existing communication site right-of-way holders to find alternative off-Monument locations for facilities once their current leases expire.

Research Management

Objective RM-1(I): Authorize and encourage on-Monument research in the following order of priority:

1. Research that has direct implications for improving management and protection of objects of the Monument Proclamation as identified as objectives in the RMP and the Conservation Target Table (Attachment 5).
 2. Research that furthers scientific understanding of Monument resources.
 3. Research that has scientific value, but may have only indirect benefits for understanding or management of Monument resources.
- *Action RM-1(I)*: Identify research priorities and update or revise annually or on an as-needed basis.
 - *Action RM-2(I)*: Working through organizations such as The Nature Conservancy and universities, allow outside review by scientific experts, as needed, to provide recommendations on study design or effectiveness in meeting management goals.
 - *Action RM-3(I)*: Focus research efforts on projects or studies whose topics are useful in formulating management actions and promote conservation, with special emphasis on listed or sensitive species and their habitats and significant cultural resources.
 - *Action RM-4(I)*: Develop a strategy for prioritizing multiple research proposals.
 - *Action RM-5(I)*: Create and adopt a research code of ethics in cooperation with the managing partners and other professionals.
 - *Action RM-6(I)*: Maintain the Conservation Target Table (Attachment 5) to determine management prescriptions of biological resources. Encourage and assist researchers in developing studies to answer questions relating to the resource targets and how management actions affect them. Update the table as knowledge is gained.

Objective RM-2(I): Provide a framework that encourages and facilitates quality research in areas of biologic, paleontological, geologic, and cultural resources.

- *Action RM-7(I):* Provide support, such as housing, within the Monument for researchers when available. Investigate other housing opportunities such as acquiring used mobile units or working with neighboring communities to identify available housing in the private sector.
- *Action RM-8(I):* Provide existing GIS, weather, and vegetation mapping data or other data as available, to researchers.
- *Action RM-9(I):* Work with species experts, members of academia, and other professionals to encourage research involvement. Encourage research projects that will aid in maintaining stable and increasing populations of threatened and endangered species, investigating topics identified in recovery plans.
- *Action RM-10(I):* Consider other outreach methods including sponsoring research symposia to inform the scientific and professional communities of research opportunities within the Monument.
- *Action RM-11(I):* Coordinate with partners and the scientific community to assess opportunities for establishing an on-Monument research facility.
- *Action RM-12(I):* Work with local schools, organizations and groups, and local communities to enlist citizen-scientists or other volunteers to assist with monitoring and research or field activities.

Objective RM-3(I): Data gathered through research, inventories, and monitoring will be made available to the scientific community and the public to the greatest extent possible. This will exclude proprietary information such as cultural and paleontological resource data.

- *Action RM-13(I):* Use state-of-the-art equipment and technology consistent with BLM standards for accurate data collection, retrieval, and storage, and for the benefit of information-sharing with the public, educational institutions, and other governmental agencies.
- *Action RM-14(I):* Create a local information archive system of CPNM-generated research, inventory, and survey data for easy retrieval and use by the scientific community, other agencies, partner organizations, and others, to be maintained in conjunction with the Carrizo Library (excluding cultural resources, Native American, or other proprietary information).
- *Action RM-15(I):* Manage data consistent with CPNM, BLM, and National Landscape Conservation System (NLCS) policies such as the Department of the Interior's *Adaptive Management Technical Guide* (USDI 2007) and the *NLCS Science Strategy*'s science goals and objectives (BLM 2007).
- *Action RM-16(I):* Maintain a list of past and current research, inventory, and survey data on the CPNM website for use by the public.
- *Action RM-17(I):* Maintain current aerial photography imagery of the CPNM, digital GIS layers of resources and infrastructure, and utilize other technologies as changes occur and staffing and funding is available.
- *Action RM-18(I):* Develop an educational component to data sharing in conjunction with the Goodwin Education Center and the Friends of the Carrizo to provide outreach to schools and the public.
- *Action RM-19(I):* Increase the Monument's capacity to collect relevant weather data across the landscape in varying habitats.

Objective RM-4(I): Evaluate and process proposals in a timely manner while ensuring that projects meet Monument research objectives and protect sensitive resource values.

- *Action RM-20(I):* All research projects will undergo an evaluation and approval process which will include:

- An assessment of its priority level (see Research Priority objective).
 - An appropriate level of environmental analysis (NEPA) by BLM staff.
 - Incorporating project-specific stipulations.
 - A final written determination, which will be in the form of an authorization, a request for changes to the proposal for resubmission, or denial of the project. (Cultural research and paleontological proposals must meet permit standards and receive approval from the State Office and Field Office to proceed in the field or they must be authorized through a volunteer or cooperative partnership meeting BLM's Cultural Resources Manual 8100 and permit standards).
- *Action RM-21(I):* Proposals determined to require further evaluation will be submitted to knowledgeable members of the scientific community. These experts will review proposals for scientific merit, how best to incorporate findings into management actions, and to propose additional research needs.
 - *Action RM-22(I):* BLM will coordinate with the Monument's Native American Advisory Committee and tribal and other Native Americans before approving research for cultural resources.

Attachment 3

Standard Operating Procedures and Implementation Guidelines for Projects Affecting the Biological Environment

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Attachment 3

Standard Operating Procedures and Implementation Guidelines for Projects Affecting the Biological Environment

Species Reintroduction

- Priorities for species reintroduction would be determined by developing a list of regionally and locally extirpated species. Probability of a successful reintroduction, based on habitat suitability and environmental conditions, would be considered when establishing priorities for species reintroductions.
- Develop a reintroduction strategy in cooperation with managing partners and other experts, including the U.S. Fish and Wildlife Service (USFWS), as appropriate. Strategies should be designed to detail population objectives being sought, minimize the possible changes in genetic composition of native species inhabiting the Monument, address contingencies should a population start to impact another species or plant community in adverse and unpredicted ways, and outline monitoring strategies necessary to evaluate success of the reintroduction.
- Explore options for increasing herd size and distribution of native ungulates within the limits of natural carrying capacity.
- Work with the Condor Recovery Team to implement recovery actions for California condor recovery.

Restoration

- Initiate studies to further our understanding of soil-vegetation relationships and historical distributions of plant communities to help plan restoration efforts.
- Establish test restoration plots throughout the Monument to determine the most promising techniques for reintroducing native species, the biotic and abiotic factors that influence community composition, and the effects of restoration efforts on native and sensitive species.
- Match local genotypes, as close as practical, when choosing seeds and other materials for habitat restoration. Allow limited development of greenhouses and/or small nursery plots for the production of propagation materials. Encourage native seed and plant growers to develop Carrizo Plain plant materials for use in restoration activities.
- Adjust grazing prescriptions or eliminate grazing altogether from reintroduction sites, to protect populations of vulnerable sensitive species (if necessary).
- Identify opportunities for restoration by mapping roads and fuel breaks to be abandoned, previously cultivated fields, overgrazed areas, and other areas where the vegetation community has been degraded or destroyed or where natural revegetation rates are not satisfactory.
- Adjust grazing prescriptions or eliminate grazing following restoration treatments, if necessary to protect populations of vulnerable species and/or facilitate establishment of newly planted sites.

Surface Disturbance

- Vegetation removal and surface disturbance would be minimized. Surface rehabilitation measures would be applied when needed to protect the soil surface. Hand clearing would be emphasized over heavy equipment.

- When applicable, soil crusts would be removed prior to construction and redeposited at the completion of the project.
- Authorizations for new surface-disturbing activities would encourage the use of existing disturbed areas, avoiding impacts to listed species and minimizing impacts to significant cultural and paleontological resources, riparian communities, and sensitive species. Natural drainage patterns would be maintained to the greatest extent possible. Large draws and drainages with saltbush would be avoided as much as possible.
- Soil-disturbing activities would be avoided during periods of runoff, or when soils are wet and muddy, in order to minimize damage.
- Upon completion of construction of a project, unused roads and work sites would be restored where appropriate and signs or barriers could be installed to prevent continued travel on construction roads.
- Roads and well pads in areas of extremely unstable bedrock formations and active landslides would be precluded or would require special design criteria. Civil engineering studies or geotechnical studies would be required to determine feasibility prior to road and drill pad construction.
- All surface-disturbing activities would be designed to minimize wind and water erosion. Consistency with state air pollution laws would be maintained.
- Work area boundaries would be delineated with flagging, temporary fencing, or other marking to minimize surface disturbance associated with vehicle straying. Alternately, sensitive resources would be flagged for avoidance.

Species and Habitat Surveys

- Surveys for sensitive resources would be done prior to any activities that have potential to affect natural communities and sensitive species. Sensitive resource locations encountered during surveys would be marked for avoidance. Disturbance to San Joaquin kit fox dens, giant kangaroo rat burrows, San Joaquin antelope squirrel burrows, and burrows used by blunt-nosed leopard lizards would be avoided to the greatest extent possible. Disturbance to occupied burrowing owl burrows would be avoided to the greatest extent possible. Areas supporting the longhorn fairy shrimp or other sensitive aquatic species would be avoided to the greatest extent possible. Personnel familiar with the sensitive resource could be required to be present during construction activities. Should additional species become listed in the future, habitat features associated with these species would also be avoided as much as possible.
- Surveys should be conducted at the appropriate time of year to detect sensitive species. At the discretion of BLM, existing information, in lieu of a site specific survey, could be used to determine project impacts and mitigation.
- If it has been longer than 30 days between the last biological survey and the proposed start of construction, BLM biologists may require additional surveys for sensitive species. Surveys would be conducted by qualified personnel familiar with the target species

Vehicle and Aircraft Use

- Off-road vehicle travel must be specifically authorized for a given project. Off-road vehicle travel would be discouraged and limited to the minimum necessary. Off-road vehicle routes would be selected to minimize damage to burrows, dens, sensitive plant habitat, and shrubs.
- Vehicle speed limits would be limited to the minimum reasonable speed to reduce potential for road kills.

- No aircraft will be operated in a manner that could disturb wildlife within the Monument, unless in the performance of official duties or authorized by BLM.
- Coordinate with appropriate federal agencies to restrict low altitude flights over the Monument to protect sensitive resources.

Work Site Requirements

- Pets would not be permitted on a project site during project activities, unless confined or leashed.
- All trash would be disposed of in closed containers and regularly removed from the project site to an approved disposal facility.
- All persons involved in project construction work would be informed of listed species in the project area and specific measures that must be taken to avoid impacts to these species. Participants would be required to sign a document acknowledging their understanding of these protective measures.

Resource Protection

- Apply Livestock Management Guidelines as necessary to meet or exceed the rangeland health standard for species.
- New fence construction would be minimized to avoid impacts to pronghorn. Fences in pronghorn habitat areas would be modified to meet BLM standards for pronghorn passage.
- New development within 1/4 mile of springs, guzzlers, or riparian areas would be avoided whenever possible. This restriction is intended to minimize wildlife disturbance at key water locations and to limit impacts to sensitive watersheds. Activities that could be allowable in these areas include spring developments, water pipelines, fences, and project maintenance and repair. Power lines, roads, and other linear developments could be allowed, with suitable mitigation, to cross riparian areas where there are no viable alternatives.
- Riparian areas should be fenced or otherwise protected to prevent degradation. Water diversions would divert the minimum necessary amount. Float valves or other devices would be installed to control diversion amounts. Water for livestock use would be piped at least 1/4 mile from the riparian zone. If possible, livestock waters would be kept on year-round for use by wildlife.
- Exploration, construction, and development activities would have seasonal restrictions imposed within a 1/2-mile radius around raptor nest sites. Seasonal restrictions would allow for undisturbed courtship, nest building, incubation, and fledging. This seasonal restriction could last as long as six months, depending upon species. Restrictions could be imposed around high use areas during other seasons.
- New wells and power lines would not be developed within 100 yards of ridge lines to minimize potential impacts to condors.
- Artificial perches will be minimized and eliminated where practicable in grassland and shrubland habitats.
- Authorizations for surface-disturbing activities near sensitive plants would require avoidance of those plants, or restrictions for all or a portion of the time period from germination to seed dispersal. Inventories for sensitive plant species would be conducted in order to identify areas to avoid. Topsoil and topography would be restored when the project is completed.

- Extant populations of sensitive plant species would be avoided to the greatest extent practicable. Sensitive plants in the vicinity of planned activities will be temporarily fenced or prominently flagged to prevent inadvertent encroachment by vehicles and equipment during the activity.
- If extant populations of sensitive plants cannot be avoided, surface disturbance would be scheduled after seed set and prior to germination. Collection of seed, with reseeding undertaken at the site following the activity, during seasonal time-frames, and when weather conditions are favorable for germination and growth, may also be required. If deemed appropriate, topsoil would be stockpiled and replaced or translocated as soon as practicable after project completion.
- Timing of activities would be planned to minimize impacts to sensitive resources to the extent practical. The following are examples of actions that could be taken:
 - If burrows used by blunt-nosed leopard lizards could be collapsed, the activity would be planned for when blunt-nosed leopard lizards are active and outside their burrows.
 - If nesting birds could be impacted, the activity would commence after the nesting season.
 - If habitat of sensitive annual plant species is involved, activity would be planned for after seed set.
- Actions would be minimized during evening hours when some listed species are active and vulnerable to vehicle or equipment induced injury or mortality.
- Projects that involve trenching should generally be scheduled during blunt-nosed leopard lizard inactive periods (Oct - Mar) to reduce pitfall mortality, or should require several trench inspections per day. Escape ramps would be provided in all trenches, pits, and water troughs. Trenches and pits could also be covered with plywood or similar material, and would be inspected regularly to remove entrapped animals. A final inspection of each trench and pit would be made before backfilling.
- Vehicle speed will not exceed 20 miles per hour on BLM-administered roads in endangered species habitats. BLM would request vehicle speeds on county roads be reduced in appropriate areas with high wildlife populations or vehicle strikes to avoid future collisions with wildlife.
- Pipe ends, culverts, and similar structures with a diameter of at least three inches would be thoroughly inspected for entrapped animals before being moved, capped, or buried. Any animals found inside would be allowed to escape before the pipe or culvert is moved, capped, or buried. During construction, all partially installed pipe ends, culverts, and similar structures would remain covered unless closely attended by a monitor.
- Disturbance to San Joaquin kit fox dens, giant kangaroo rat burrows, San Joaquin antelope squirrel burrows, burrowing owl burrows, badger dens, and burrows used by blunt-nosed leopard lizards would be avoided to the greatest extent practicable. Personnel familiar with the sensitive resource would be required to be present during construction activities. The following buffers will be established:
 - 50 feet – active giant kangaroo rat precincts, San Joaquin antelope squirrel burrows, badger dens, and burrows used by blunt-nosed leopard lizards
 - 100 feet – known, occupied, and potential non-natal kit fox dens; occupied burrowing owl burrows outside the breeding season
 - 200 feet – unoccupied natal kit fox dens, occupied burrowing owl burrows during the breeding season
- If impacts to active giant kangaroo rat precincts cannot be avoided, the animals would be trapped no greater than seven days prior to ground disturbance for five consecutive nights. On the day following

the fifth trap night, burrows would be carefully excavated. Depending on the nature of the project, captured animals would be held and released after construction is complete or released into unoccupied but suitable habitat. Artificial burrow systems could be installed in the release area, if necessary.

- In areas where blunt-nosed leopard lizards have been observed or are expected to occur, burrows likely to harbor blunt-nosed leopard lizards would be carefully excavated. Excavation would occur no more than seven days prior to construction. If a blunt-nosed leopard lizard is encountered during these excavations it would be allowed to escape unharmed. If eggs are found in the burrows, the USFWS would be contacted for further guidance.
- Disturbance to or destruction of San Joaquin kit fox dens should be minimized to the maximum extent practicable between January 1 and April 30 to reduce disruption of kit fox breeding activities.
- If destruction to a San Joaquin kit fox den is unavoidable, the USFWS and California Department of Fish and Game (CDFG) would be notified. Destruction of known or suspected natal or pupping dens would be avoided during the breeding season (November 1 to July 31). Destruction of natal or pupping dens known to be occupied would not be permitted until the den has been vacated.
- Prior to the destruction of any known San Joaquin kit fox den, the den would be monitored for at least three consecutive days to determine its current status. Activity would be monitored by placing tracking medium at the entrance(s) and by spotlighting. If no activity is observed during this period, the den would be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den would be monitored for five consecutive days from the time of observation to allow any resident animal to move to another den during normal activities. Use of the den would be discouraged by partially plugging the entrance(s) with soil in such a manner that any resident animal can escape easily. Destruction of the den would begin when the animal has moved to a different den. If the animal is still present after five or more consecutive days of plugging and monitoring, the den could be excavated. Excavation of the den would be conducted when it is temporarily vacant, for example during the animals' normal foraging activities. Destruction of the den would be accomplished by careful excavation until it is certain that there are no kit foxes inside. The den would be fully excavated and then filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If a kit fox is discovered inside the den, the excavation activity would cease and the animal would be allowed to escape.
- Any person handling listed species must have a permit issued by the CDFG and/or the USFWS. All persons monitoring listed species or monitoring in the vicinity of listed species would be advised of the need to reduce surface disturbance and harassment to the maximum extent possible.
- These guidelines could be revised or updated if the USFWS or the CDFG issue new or revised species survey or protection guidelines.

Hazardous Materials

- All spills of hazardous materials within endangered species habitats shall be cleaned up immediately.
- All oil spills would be contained closest to the source as possible.

Third-Party Authorizations (see also Minerals SOPs)

- A worker or participant education program would be required for all third party authorizations. The education program would include identification of sensitive species and their habitats, project or event mitigation measures and stipulations, reporting requirements, and penalties for failure of compliance.

- If biological issues have been identified for a project, a biological monitor could be required to minimize project impacts. The biological monitor would be responsible for field crews to be in compliance with protection measures, performing surveys in front of crews as needed to locate and avoid sensitive species and habitat features, and monitoring project mitigation compliance. Biological monitors would be required to be present on site during initial surface disturbing actions.
- Geophysical exploration will use small (for example, tractor-mounted or ATV/UTV pulled) or heliportable shot hole drills on BLM lands within the Monument rather than vibroseis rigs to generate source points. Vibroseis may be used on existing roads with BLM approval.
- In addition to avoidance and mitigation measures, compensation would be required for third party authorizations for activities that are unrelated to the management of the Monument. Compensation offsets the unavoidable effects of project impacts to resources. Protection of additional habitat outside the immediate project area is a common compensation measure. Compensation will be located within the Monument boundary. A standard ratio between the acres impacted and acres to be protected is established. The following compensation ratios have been established for San Joaquin Valley species:
 - Temporary habitat disturbance 1.1 to 1
 - Permanent habitat disturbance 3 to 1.
 - Vernal pools 5 to 1.
 - Seasonally filled natural depressions 1.1 to 1 (temporary) or 3 to 1 (permanent).
 - Compensation would not be required for manmade depressions.
- Any new compensation ratios established by the USFWS or CDFG would be used.
- In addition to the compensation requirement, a replacement component would be required for third party authorizations that disturb habitat on public lands. The replacement component consists of replacing the acres disturbed at a ratio of 1:1. It is necessary to both compensate and replace the disturbed lands to avoid a net loss in the area of habitat conserved in the Carrizo Plain National Monument. Without the provision of replacing conserved habitat in addition to compensating for the disturbance, the Monument could potentially lose acres of habitat that had been previously protected.
- BLM will work with utility companies to configure or modify power lines to eliminate raptor electrocutions to the greatest extent practicable.

Blunt-Nosed Leopard Lizard Requirements

- Avoid burrows that may be used by blunt-nosed leopard lizards.
- Locations of activities with potential to collapse or block burrows (such as sleeper placement; stockpile, storage, and parking areas; trenching) will be approved by the biological monitor.
- The biological monitor may allow certain activities in burrow areas if, in the judgment of the biological monitor, the combination of soil hardness and activity impact is not expected to collapse burrows. Activities authorized by the biological monitor in burrow areas will be documented and included in any report.
- Roadway sections where blunt-nosed leopard lizards have been observed or are likely to occur should be clearly marked to prevent workers from driving off the road and over burrows. Barriers, such as fencing, may also be installed.
- A brief description of measures taken to avoid burrow collapse will be included in any report, including the post-construction report.

- In addition, for project activities that occur during the blunt-nosed leopard lizard active season (approximately April 15 to October 15), the following will apply:
 - BLM will be notified that blunt-nosed leopard lizard active season measures are being implemented.
 - When possible, conduct project activities at night or during blunt-nosed leopard lizard inactivity periods (generally when temperatures are below 77 °F and above 99 °F).
 - All personnel will be advised to reduce speeds on sections of the access/egress route with potential to support blunt-nosed leopard lizards.
 - All vehicle operators will check under vehicles and equipment prior to operation.
 - Any trenches or pits will be inspected by the biological monitor in the morning, late afternoon, at the end of the work day, and prior to backfilling to free any blunt-nosed leopard lizards that may become entrapped. Trenches or holes should have at least one escape ramp for each 1,000 feet of open trench. Escape ramps should be earthen and at a slope no steeper than 1:1.
 - A flashing barrier may be installed around the work area to prevent blunt-nosed leopard lizards from entering the work area. The flashing barrier will be constructed of 18-inch or wider flashing, buried 6-inches in depth, and reinforced with rebar or fence posts. Silt fencing will be used to isolate areas inside the exclusion fence. If a blunt-nosed leopard lizard is subsequently found within the fenced area, the fence will be removed (in that area) and the lizard will be allowed to leave the exclusion zone. Surveys will continue until blunt-nosed leopard lizards are no longer observed inside the flashing barrier (that is, no evidence for one to two weeks dependent upon the discretion of the biologist). Barrier installation may occur prior to emergence of blunt-nosed leopard lizards providing that no burrows are destroyed. Avoid burrows during barrier construction. Surveys will occur when temperatures are sufficient for leopard lizards to be above ground. The flashing barrier will remain in place until drilling and sump closure activities have been completed.
- Burrows that cannot be avoided may be destroyed under the following circumstances:
 - If a blunt-nosed leopard lizard is observed exiting a burrow, the burrow may be immediately destroyed. The burrow should be carefully excavated under the supervision of a qualified biologist to verify that it is unoccupied and immediately destroyed.
 - Burrows inside a flashing barrier may be destroyed after the survey and monitoring requirements described above for flashing barriers has been met. Burrows should be carefully excavated under the supervision of a qualified biologist to verify that it is unoccupied and then destroyed.
 - If any burrows are destroyed, the following information will be included in the post construction compliance report: the dimensions of the area impacted by burrow destruction/excavation; number of burrows destroyed/excavated; results of burrow excavation, including any observations of wildlife in excavated burrows; and any other information deemed useful by the consulting biologist.
- The biological monitor shall check the project area and access route daily during the blunt-nosed leopard lizard active season to determine the presence or absence of lizards in the work area. If blunt-nosed leopard lizards are observed in the project area or along the access route, the biological monitor will take action to avoid impacts to lizards.
- If a blunt-nosed leopard lizard is observed at the project site or along the access/egress route, the biological monitor will notify BLM of the actions being undertaken. Initial notification may be by phone message. Written documentation, including GPS coordinates of lizard observations, will be

included in any reports. The post-construction report will include a map showing the location, date, and time of any blunt-nosed leopard lizard observations.

- Roadway sections where blunt-nosed leopard lizards have been observed should be clearly marked to prevent workers from driving off the road into blunt-nosed leopard lizard habitat or over burrows. Barriers, such as fencing may also be installed.
- The biological monitor must be on site during appropriate temperatures for blunt-nosed leopard lizard activity. The biological monitor will escort all traffic through any area where blunt-nosed leopard lizards have been observed. Biological monitors will complete daily compliance reports. Daily compliance reports will be summarized and included in the weekly report sent to BLM.
- Large vehicles (such as tankers, water trucks, drilling rigs) must be escorted to and from the work site by a biological monitor during appropriate temperatures for blunt-nosed leopard lizard activity.
- The biological monitor will provide BLM with a brief weekly report describing any actions taken to avoid blunt-nosed leopard lizard impacts. This report may be submitted by email to BLM.
- All reports must be submitted by the biological monitor conducting the work in the field or be reviewed by the field biological monitor. Alternately, the original report prepared by the field biological monitor may be attached to the report.
- Upon determination by the biological monitor that temperature patterns at the project site no longer support blunt-nosed leopard lizard activity for the season and receipt of BLM concurrence, these active season measures may be discontinued.
- If blunt-nosed leopard lizards have been observed in the project area or along the access route, and operations and maintenance activities will continue into the next blunt-nosed leopard lizard active season, an Operations and Maintenance (O&M) Plan will be submitted to BLM. The O&M Plan will outline the practices and mitigation measures that will be implemented to avoid impacts to blunt-nosed leopard lizards for O&M activities.

Giant Kangaroo Rat Requirements

- Avoid active precincts by a buffer of 50 feet. Actions within the buffer zone will be limited to vehicle and equipment operation on existing roads. Foot traffic or ATV/UTV cross country travel may be authorized if travel routes are designated by a biological monitor to avoid burrows and travel will be limited to crushing of herbaceous vegetation with negligible soil disturbance. All travel along routes will be conducted under the supervision of a biological monitor. Actions within buffer zones will be confined to daylight hours.
- If active precincts cannot be avoided, the area will be trapped no greater than seven days prior to ground-disturbing activities for five consecutive nights. On the day following the fifth trap night, burrows will be carefully excavated. Captured animals will be marked and may be released into enclosed artificial burrow systems outside the work area the following night. All work will be supervised by a USFWS-qualified biologist. At anytime during the year, the USFWS and BLM may adjust or decide to discontinue the capture and release program.

Adaptive Management

- Develop and conduct monitoring throughout the Monument to evaluate the efficacy of the management activities in maintaining and enhancing native species and natural communities.
- Use monitoring data, field observations, or other information to evaluate and, if needed, modify management practices.

Invasive and Non-Native Species

- Coordinate with managing partners and local county weed districts for the control and eradication of exotic species.
- Educate the public about the need to control invasive species.
- Determine location and extent of populations of exotic species and implement a prioritized control strategy.
- Aggressively control specific exotic species considered to be a threat to biotic communities.
- Keep a current mapping of all noxious weed infestations on the Monument.
- Commit to long-term monitoring and treatment of problematic infestations such as yellow star-thistle.
- Use an integrated pest management approach in the control of invasive species, including biological, mechanical, chemical, and other accepted control methods.
- Develop a weed control strategy designed to minimize herbicide use and the impact on non-target species.
- Provide appropriate safety equipment for herbicide applications and ensure that applicators have had proper safety training.
- Evaluate and minimize impacts to cultural resources when planning and implementing weed control measures.
- Evaluate the threats from and the value of non-native tree species and eradicate when appropriate. Consider historic, recreational, and wildlife value of trees when evaluating potential control measures.
- Encourage livestock operators, research teams, fire crews, equestrians, and other authorized users and Monument visitors to employ management practices that minimize the spread of weeds (such as cleaning equipment prior to entering the monument). Incorporate best practice requirements into stipulations for use authorizations. Promote or require the use of certified weed-free hay and feed on the Monument.
- If necessary to meet the mission and vision, consider control of exotic animal species such as red fox, wild pig, rock doves, and starlings
- If necessary to protect populations of rare native species, implement control measures to minimize negative impacts from native animal species such as coyotes, ravens, and cowbirds.
- Prohibit the release of non-native animal species other than those introduced specifically for the purpose of biological control of specific noxious weeds, or those released during legal hunts as regulated by CDFG. If individuals of non-native animal species are discovered (other than biological control agents), eradicate them before the species becomes established.
- Prohibit the placement of non-native apiaries on the Monument.

Adaptive Management

- Develop and conduct monitoring throughout the Monument to evaluate the efficacy of the management activities in maintaining and enhancing native species and natural communities.
- Use monitoring data, field observations, or other information to evaluate and, if needed, modify management practices.

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Attachment 4

Minerals Standard Operating Procedures / Best Management Practices / Implementation Guidelines and Conditions of Approval

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Attachment 4

Minerals Standard Operating Procedures / Best Management Practices / Implementation Guidelines and Conditions of Approval

The following are examples of standard operating procedures (SOPs), best management practices (BMPs), implementation guidelines, and conditions of approval that will be employed on all existing federal leases and private mineral developments, subject to the limits of BLM authority and the right of the owners/lessees to have reasonable access and development. This is not intended to be a comprehensive list of all measures that could or will be applied to existing and new oil and gas operations, and the wording may be modified to address site-specific circumstances.

Implementation Guidelines

- All oilfield activities that occur on land where BLM has an interest, whether mineral or surface estate, will be conducted with the least impact practicable to sensitive resources, while still permitting those activities that are legally allowed.
- Wells that are not commercially developed will be reclaimed to natural contours and revegetated as soon as appropriate; that is, restoration methods will consider timing of planting, acceptable species and evaluation criteria, and will be tailored to area-specific resource conditions and be compatible with the monument proclamation.
- Applications for Permit to Drill (APDs), Sundry Notices (leasehold activities requiring surface disturbance), and Final Abandonment Notices will be reviewed using the existing NEPA approval process, including timely posting on the web at:
<http://www.blm.gov/ca/forms/nepa/search.php?fo=Bakersfield>.
- Timely plugging and abandonment of depleted wells will be required. This includes plugging the well bore with cement, removing all materials and equipment, and recontouring/revegetation as specified in the conditions of approval.
- Design roads, well pads, and facilities to impact and fragment the least acreage practicable. New facilities will be designed to maintain natural drainage and runoff patterns, reduce visual impacts, and reduce hazards to wildlife, especially California condors. Encourage operators to modify existing facilities when necessary to achieve the above objectives, and consider providing BLM funds to assist if requiring modifications is beyond BLM's authority on existing leases. Impacts associated with noncommercial wells will be restored as soon as appropriate using BLM restoration methods.
- Only geophysical activities that do not result in damage to the objects of the Proclamation will be authorized. Such activities will include walking out and/or the use of helicopters to deploy geophone lines. On a case by case basis, ATVs could be used to deploy geophone lines. Other activities will include limiting all source points (vibroseis and shot holes) to existing roads. On a case by case basis, drilling of shot holes using heliportable or small portable drills for underground detonation will be allowed off-road. After the data gathering phase, resource specialists will evaluate impacts and recommend remediation when appropriate.
- Good housekeeping requirements will be enforced (that is, operators will be required to maintain a neat and orderly appearance of sites, remove junk and trash, and otherwise minimize landscape intrusions).

- Sufficiently impervious secondary containment, such as containment dikes, containment walls, and drip pans, must be constructed and maintained around all qualifying petroleum facilities, including tank batteries and separation and treating areas consistent with the Environmental Protection Agency's Spill Prevention, Control, and Countermeasure regulation (40 CFR 112).
- Chemical containers must not be stored on bare ground, exposed to the sun and moisture. Labels must be readable. Chemicals containers must be maintained in good condition and placed within secondary containment in case of a spill or high velocity puncture.
- Pipelines will be placed within existing disturbed rights-of-way, such as road shoulders, whenever feasible.
- Roads will be designed to an appropriate standard no higher than necessary to accommodate their intended functions.
- New wells and roads will be located in areas where cut and fill will be minimized to the extent practicable.
- Operators will be encouraged/required to place multiple wells on a single pad where feasible in order to minimize unnecessary disturbance.
- Operators will be required to maintain clean well locations and to remove trash, junk, and other materials not in current use.
- After extracting small amounts of mineral materials (typically dirt or sand and gravel) for emergency/administrative purposes, equipment operators will be required to blend the excavated area back in with the surrounding area. Small amounts of minerals can be collected by individuals from Soda Lake with prior permission obtained from BLM. These individuals will be restricted to use of hand tools to dig through the saline crust into the underlying black mud that contains the crystals.
- Other BMPs that may be applied to operations at the CPNM can be found on the web at:
http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html

Conditions of Approval

The following describes recognized engineering practices for the routine operation of oil and gas exploration and development activities, known as conditions of approval. These standard procedures are described in the Federal Onshore Orders and further clarified in the Code of Federal Regulations (43 CFR).

Standard regulations could be supplemented with additional conditions of approval. The additional conditions of approval address sensitive issues within the Bakersfield Field Office. Critical issues underlying the federal regulations and supplemental conditions of approval are the protection of usable aquifers, mineral zones including hydrocarbons, surface environmental issues, site safety and well control, and site reclamation.

Bureau inspection and monitoring of oil field activity will occur in the following phases of oil and gas development:

- a. Geophysical/seismic
- b. Drilling a new well
- c. Temporary abandonment of a producing well (idle well)
- d. Plugging and abandonment of a well
- e. Surface reclamation

No special conditions of approval are normally added for routine producing operations. The following describes the conditions of approval applicable to each of the oil and gas development phases on existing federal oil and gas leases recognized as valid existing rights within the Monument.

Drilling a New Well

After an APD has been received by the Bakersfield Field Office, a review of engineering design as well as potential effects to sensitive resources will be undertaken. During the review stage of an oil and gas project, either the operator or BLM will note special conditions on the application. When necessary, modified proposals will be developed cooperatively with the applicant to ensure that the modified project still meets the applicant's objective. Any special conditions will be attached to the APD by BLM and the applicant will be informed within seven days of receipt of the APD if there are deficiencies that need to be corrected. In addition to Bureau-wide regulations, the BLM Bakersfield Field Office has developed its own local procedures. These could include, but are not limited to:

Steam Injectors. All steam injection wells within a 300-foot radius of a new location must be shut-in a minimum of three days prior to the spudding of a new well.

Conductor Pipe. A minimum of 50 feet of conductor pipe is to be set and cemented to the surface. The conductor pipe must be equivalent to or exceed the properties of A-25 grade line pipe.

Diverter. Prior to spud, a diverter system will be installed on the conductor pipe and function tested. The test will be recorded in the drilling log. The diverter system, at a minimum, will consist of an annular type preventer (minimum working pressure 1,000 psi), two inch (2") (minimum internal diameter—ID) kill lines, and six inch (6") (minimum ID) diverter lines with no internal restrictions or turns. A full opening, hydraulically controlled valve will be installed in the diverter line which will automatically open when the annular preventer is closed. The accumulator system will have sufficient capacity to close the annular preventer and open the hydraulically-controlled valve.

Remote controls for the diverter system will be located on the rig floor and readily accessible to the driller. Remote controls will be capable of closing the annular preventer and opening the hydraulically controlled valve. Master controls will be located at the accumulator and will be capable of closing and opening the annular preventer and opening the hydraulically controlled valve. The diverter system will be function-tested daily and the test recorded in the drilling log.

General Casing and Cementing. A Subsequent Report (Form 3160-5) detailing the size, weight, and grade of the casing; the amount and type of cement, including additives; and a copy of the service company's materials ticket and job log will be submitted to BLM within five (5) business days following the cementing of the casing string. Each casing string (except conductor pipe) shall be pressure tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1,000 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing. The casing pressure test will be recorded in the drilling log. The wait-on-cement time for each casing string must be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

Drilling Fluids. Sufficient quantities of drilling fluid (mud and water) must be maintained at the well site, at all times, for the purpose of controlling steam kicks.

Temporary Abandonment of a Producing Well (Idle Well)

Oil and gas exploration and development is a cyclical business, with periods of high and low levels of activities. On occasion, an operator may decide to temporarily shut-in producing wells and wait for conditions to improve. The highly viscous nature of most Kern County crude oil, typical low well head pressures, and the relatively low corrosive properties of the fluids (low-sulfur crude) make the known dangers of shutting in a well for long periods and then bringing it back on-line less of a mechanical problem here in the Field Office Area than in other producing regions of the country. By approximately 1990, a large number of wells were remaining idle for longer and longer periods. Monitoring and correction of the problem has been successfully undertaken by the California Division of Oil, Gas, and Geothermal Resources and the local BLM Field Office. The following additional conditions *may* be required prior to the temporary abandonment of a producing oil/gas well, service well, or an injection well.

Zone Isolation. The requirement to isolate the producing interval (General Requirement #4) is waived. This waiver is based on the information submitted with the application and the geologic data in Volume II - California Oil and Gas Fields, (field name) which indicates the absence of usable water aquifers above the producing horizon in (section in which well is located).

Mechanical Integrity of Casing. The mechanical integrity of the casing may be determined using the ADA pressure test method.

Fluid Surveys. A fluid level survey will be performed at six (6) month intervals during the period the well is temporarily abandoned. A copy of the survey shall be submitted to BLM within five (5) business days of the survey.

Monitoring of Wellhead Pressures and Temperatures. Wellhead pressure and temperature will be continuously monitored throughout the period the well is temporarily abandoned. Any pressure / temperature change will be promptly reported to BLM.

Isolation of the Producing Interval. The producing interval will be isolated by setting a plug in the casing within 100 feet above the producing interval if a rising fluid level, an increasing wellhead pressure, or an increasing wellhead temperature is detected. The plug could be either a retrievable or drillable-type bridge plug or a cement plug of at least 100 feet in length.

Plugging and Abandonment of a Well

No additional conditions are typically attached to the abandonment of a well in California. Onshore Orders describe the plugging procedure. While final abandonment will normally be witnessed by BLM, no final above-ground site marker is currently required by the Bakersfield Field Office.

Surface Reclamation

Conditions for the recovery of an oil well site are unique to each area's ecosystem and habitat. The following examples of conditions of approval have been developed for use within the Bakersfield Field Office Area. The applicability of any or all of these conditions of approval will be determined based on site-specific conditions.

General. The operator (or holder) shall prepare a seedbed by: (a) scarifying the disturbed area, (b) distributing topsoil uniformly, or (c) disking the topsoil, as directed by the BLM authorized officer (use one as appropriate).

The operator will recontour the disturbed area and obliterate all earthwork by removing embankments, backfilling excavations, and grading to re-establish the approximate original contours of the land in the area of operation.

The operator will uniformly spread topsoil over all unoccupied disturbed area (outside the ditch line, fence line, and work area). Spreading will not be done when the ground or topsoil is frozen or wet.

The operator will seed all disturbed area, using an agreed-upon method suitable for the location using locally collected seed. Seeding shall be repeated if a satisfactory stand is not obtained as determined by the BLM authorized officer upon evaluation after the first growing season.

The operator will arrange to have a biologist available to assist the construction workers in the identification and avoidance of endangered species.

Producing Wells. Site reclamation for producing wells will be accomplished for portions of the site not required for continued operation of the well. The following measures are typical reclamation requirements:

- Reclamation of drilling fluid pit (mud pit)
- Cut and fill slope vegetation
- Site fencing
- Berm removal and site grading
- Polluting substances, contaminated materials moved offsite or buried

Nonproducing Wells. Rehabilitation on the entire site will be required and will commence as soon as practical, dependent upon prevailing weather conditions. Cut and fill slopes will be reduced and graded to blend to the adjacent terrain.

Drilling fluids held within pits may be allowed to dry. Fluids that will not dry must be removed. All polluting substances or contaminated materials such as oil, oil-saturated soils, and gravels must be removed to an approved site.

Drainages must be reestablished and temporary measures will be required to prevent erosion to the site until vegetation is established.

After final grading and before replacement of topsoil, the entire surface of the site will be scarified to eliminate slippage surfaces and to promote root penetration. Topsoil will then be spread over the site to achieve an approximate uniform, stable thickness consistent with the established contours.

Permanent Well Abandonment. The surface management agency is responsible for establishing and approving methods for surface rehabilitation and determining when this rehabilitation has been satisfactorily accomplished. At this point, a Subsequent (Final) Report of Abandonment will be approved.

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Attachment 5 Conservation Target Table

Background

Conservation targets are a key component of the National Conservation Lands (NCL) management planning process. They provide a clear, measurable, and achievable statement of the desired future condition of the land and its resources. Conservation targets are developed based on the best available scientific information and the values and uses of the land. They are used to guide management decisions and to monitor the progress of conservation efforts. The Conservation Target Table provides a summary of the conservation targets for the Carrizo Plain National Monument.

Attachment 5 Conservation Target Table

How to Use the Table in the Conservation Target Management Plan

The Conservation Target Table is organized into four columns: Target, Priority, Status, and Comments. The targets are listed in the first column, and the other columns provide additional information about each target. The targets are organized by priority, with the highest priority targets listed first. The status of each target is indicated by a color-coded box: green for "On Track", yellow for "At Risk", and red for "Off Track". The comments column provides a space for additional information about each target.

The targets are organized into four categories: Biological Resources, Cultural Resources, Geology and Soils, and Visual Resources. Each category contains a list of targets, with the highest priority targets listed first.

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Attachment 5

Conservation Target Table

Background

Several resource management programs (Biology (wildlife and vegetation), Livestock Grazing, and Fire & Fuels Management) make reference to a “Conservation Target Table” to describe specific aspects of management program implementation. This table, a work in progress, has been developed by the managing partners as an integral part of an adaptive management approach to guide implementation of objectives in this RMP for protection and benefit of the natural communities and “featured species” (listed species, large native ungulates, and plant or animal species receiving management emphasis). The current table is not complete but will continue to be developed. More species of plants and animals (plant communities, vertebrate and invertebrate animals) will be added and prioritized. The objectives listed in the table are derived from and fully support the objectives described in this RMP. Specifically, the table identifies important ecological factors that influence the health, abundance, and distributions of the natural communities and featured species. This is accomplished by identifying: (1) the important habitat or population parameters that influence the target communities or species, (2) the specific habitat or population indicators or variables to be monitored, (3) the measurable attributes for these variables, (4) the values of these variables that will trigger management actions, and (5) the recommended management actions or prescriptions that may influence habitat suitability or population demographics needed to maintain the target’s health, abundance, and distribution goals.

The elements in the table are developed using the best available information obtained from a variety of sources including published literature, unpublished reports, monitoring data from within the Monument and other similar habitats, other locations with the range of the featured species, and professional experience/opinion among staff with direct experience in the Monument.

Use of the Table in Implementing RMP Management Objectives

The Conservation Target Table is the foundation of the adaptive management strategy to be implemented in the Monument. The monitoring of the management actions and their effects to the conservation targets will occur in the following manner:

- The conservation targets (vegetation communities, plant and animal featured species populations, demographics and distributions) will be monitored.
- The variables for the management objectives will be gauged in relation to the desired values of the variable.
- Recommended management actions and constraints to actions (ranging from the hands-off treatments to the application of one or more tools) would be evaluated by monitoring the management objective variables in relation to the implementation of the actions and constraints.
- Changes in the management objective variables among the actions and constraints would be documented as a possible management effect.
- As monitoring data are evaluated, the information will be used to determine the success of the management actions and constraints in meeting the specific conservation target objectives and the overall management goals.
- The evaluations and new knowledge about the conservation targets and the management effects would be used to inform future management actions and decisions.

The Conservation Target Table will also be used to describe where or under what conditions in the Monument these RMP management objectives are relevant, where the indicator variables will be monitored, and where the actions and constraints will be applied. Initially, BLM will continue to use the commonly known pasture names and boundaries to identify the basic units for management, which originated with historic ownership or usage. As needs for species are identified and management actions are defined, the use of pasture boundaries may shift to more accurately delineate the biological management units that reflect ecological parameters. Until then, a management table using pasture names has been developed to inform managers where the Conservation Targets are currently relevant based on presence or absence within a pasture. Additionally, the "Pasture Management Table" will be concurrently used as a way for managers to determine the general grazing management actions or constraints. This management table will be evolving with the knowledge of the Conservation Targets, the changing pasture boundaries, and grazing use on the Monument.

Incorporating Changes into the Conservation Target Table

The Conservation target table and associated pasture management table are considered to be "works in progress" and will be updated as needed using adaptive management principles outlined in "Adaptive Management US Department of Interior Technical Guide" and authorized under Secretarial Order 3270. The elements of the tables will be subject to ongoing review by the managing partners (BLM, TNC, and CDFG), the scientific community, species experts, the Carrizo Plain National Monument Advisory Committee, the USFWS, and the public. Changes would be made to the management guidelines (actions and constraints) or the desired values for the indicator variables as new knowledge is gained about the natural communities, the species, the ecological relationships, and management effects. This knowledge would be applied to ongoing and future management objectives and decisions, thus "adapting" the management of the Monument to use the best available information about the natural communities, featured species, and objects to be protected in the Monument.

Information or events that may trigger a change include new literature, study results, more complete information, monitoring results, new species, new impacts, new locations, changes in law or policy, or input from species experts. The managing partners will review the Conservation Target Table annually to determine if changes are appropriate. Information or events may trigger more frequent reviews. The managing partners may solicit input from species or topic experts. Through consensus, the managing partners may make changes to the Conservation Target Table based on the review. The modified Conservation Target Table will be submitted to the BLM authorized officer for approval. The change would be implemented as soon as any intermediate steps have been completed, such as NEPA analysis, publication of Federal Register Notices, or consultation with SHPO or FWS. The current Conservation Target Table will be available to the public at the BLM website.

To address increasing concern over climate change and the possible effects to the Monument's resources, BLM will rely on the Conservation Target Table and adaptive management to guide its actions in a way that continues protection while detecting change. BLM and the managing partners recognize that there are likely to be future changes associated with climate change that will alter conditions for resources on the Monument. We also realize that to better understand the consequences of these changes will require using the best information and models available combined with good baseline data and effective monitoring. Through the process of adaptive management, we will be in a position to perceive differences linked to climate change and respond accordingly.

Changes in the management guidelines (actions and constraints) or the desired values for the indicator variables in the Conservation Target Table would normally not require an amendment to this plan, while changes to the conservation target management objectives would. Any changes will undergo appropriate

level of technical review and further NEPA analysis would be required if they are outside the scope of analysis of this EIS.

Definitions and Explanation for Understanding the Tables

The first table is a description of management objectives, variables, and base information regarding each conservation target. A Conservation Target is a species, population, natural community or other biological feature or value we want to conserve within the Monument. There are three sub-tables that are tied to the first Management Objective table. The sub-tables describe the Management Guidelines, or proposed actions and constraints for each of our major tools; livestock grazing, prescribed fire, and other restoration tools. The first five columns of the Management Objective tables are copied into each of the sub-tables to make each sub-table easier to use alone. Empty cells or rows within the tables will be completed as information becomes available.

The rows of each table are organized by conservation target. Each conservation target is further divided by a management objective identified for a specific parameter for that target. Each of these rows is assigned a unique numerical identifier. A single target is given a number. Each management objective for that target reflects the target's number and an alphabetical sub unit. The conservation targets are further grouped into plants and animals. The conservation target order parallels the order in Section II.B, Management Decisions.

The information in each row is focused and true to that specific parameter for the target. The values or actions are for that specific parameter alone, and are not combined or compromised with values or management for other purposes. In this way we can track the exact purpose for each of our actions, what parameter we are managing for and what priority or importance it has when we have to combine management actions later.

The Conservation Target Table is designed to be used in conjunction with the Approved RMP, Chapter II. The Conservation Target Table is not a stand-alone document. When an objective or action in Chapter II, Approved RMP refers to the Conservation Target Table, the table should be consulted for detailed information.

Definitions of each of the 12 columns of the Management Objective table:

Conservation Target: A conservation target is a species, population, natural community or other biological feature or value we want to conserve within the Monument.

Management Objective: Management objectives for the target's habitat and populations.
PRIMARY = Focus management on these objectives, but this doesn't preclude managing for a secondary objective. This variable may have a high influence on target health. Management can affect target health by affecting these variables. **SECONDARY** = This parameter is not as important for affecting target health. We may not be able to either adequately measure or affect this variable.

Variable: The variable that we measure or monitor to assess if we are meeting our management objective.

Desired Value of the Variable: The specific value of the variable (may be a minimum or maximum or a range of values) within which we feel we can meet our target management objectives. If the value we measure is outside the range, it indicates that the objective is not being met and management action may be needed.

Time of year the variable should be measured: As stated.

Management Assumptions/ Notes: This column lists our current knowledge and assumptions of a target or its management. It holds background information and information we want to test or further investigate.

Current Monitoring of the Variable Value: Who is currently monitoring this variable and how.

Factors Affecting Management Objectives and Variables: This column holds known or suspected factors that can influence the target's health or the variables we are measuring.

Status of knowledge – throughout range (high, med, low): This is a description of what we think the status of knowledge about the target and associated parameters are throughout its range.

Status of knowledge – Carrizo (high med, low): This is a description of what we think the status of knowledge about the target and associated parameters are within the CPNM environment.

Potentially relevant citations: These are a listing of potentially relevant literature citations regarding the target and its management parameters. Not all citations have been thoroughly reviewed for applicability.

Suggested experts to contact: This is a list of experts that have knowledge regarding the target. It is a list of sources to help us with issues that arise beyond our knowledge.

Existing distributions for targets and habitats are based upon current recorded information from such sources as CNDDDB, local agency inventories and observations, CDFG species monitoring and inventories, and others.

The three sub-tables – which are Management Guidelines for Grazing, Management Guidelines for Prescribed Fire, and Management Guidelines for Other Restoration Tools – provide guidance when using a particular tool to meet an objective. The sub-tables represent possible treatment options and one is not automatically applied over the other. The first five columns of the Management Objective tables are copied into each of the sub-tables to make each sub-table easier to use alone.

Column definitions of the 2 columns within the Management Guidelines tables:

Actions and constraints on the actions: This is a description of the prescription. It is the recommended action to take for that specific target management objective. It also describes constraints to the action (especially if action is taken for another management objective).

Actions to test and evaluate: These are actions we want to test and evaluate their effectiveness at meeting the management objective. We are currently unsure or have contradictory information regarding the effects of the action or constraint.

The actions and constraints listed in these management guidelines tables are pure actions and constraints that are true to that specific objective alone. They will be combined, overlapped, and consolidated together later depending on the affected resources at the location of needed management. If no action is shown in the management guideline column, we have no action to recommend for that resource objective. A constraint is just that, it is not a prohibition on the tool entirely, but a restriction on its use.

The actions and constraints to the action will be layered and will result in a composite action in order to meet the management objectives for any given location within the CPNM. Conflicts between management actions in the same location will be resolved by the managing partners depending on the priority of the target or the location of the action.

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Carrizo Plain National Monument: Conservation Target Table

Management Objectives & Variables												
	Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
Native plant species												
9a	Caulanthus	Maintain distribution and size of existing populations (BIO-2, BIO-14)	Distribution and population size; reproducing populations	>= current levels	January - May	Grazing is detrimental; positive (?) relationship between GKR and Caulanthus		Grazing; invasive plant species				
9b	Caulanthus	Restore populations to areas of known historical range (BIO-14, BIO-8)	Success (establishment and reproduction) of restored populations in historical range	Self-sustaining populations in introduced range	January - May	Reintroduced populations will succeed in historical range		Grazing; invasive plant species				
19	wooly threads	Maintain current distribution and population size (BIO -2, BIO-14)	Presence/absence in known or appropriate locations	>= current distribution and condition across landscape relative to year's precipitation	Feb-Apr	Managed grazing not detrimental to populations; plants relatively widespread and vigorous on CPNM.		Competition from invasives, habitat degradation.	Medium - recent surveys by R. Lewis, etc.	high - 1993 & other surveys by R. Lewis	Mazer and Hendrickson 1993, Taylor 1987, Taylor and Buck 1993, Williams et al. 1998	
20a	Lepidium jaredii	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally (as in 2008)	Apr-May							

Management Objectives & Variables													
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20b	Lepidium jaredii	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays (as in 2008)	Mar-May								
32a	Amsinckia vernicosa var. furcata	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally	Mar-May								
32b	Amsinckia vernicosa var. furcata	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays	Mar-May								
33a	Acanthomintha obovata ssp. cordata (clay species)	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally	Apr-Jul								
33b	Acanthomintha obovata ssp. cordata	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays (like in 2008)	Apr-Jul								

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
22	Clay species	Presence/absence in known or appropriate locations	>= current distribution and condition across landscape relative to year's precipitation	Mar-Jun	Species restricted to clay soils present as linear outcrop along west side of Calientes.		habitat degradation by OHV, livestock, weeds.	Low - few or no studies, R. Lewis CPNM surveys only	R. Lewis 1992 ANOV surveys		
31	vernal pools	TBD									
2a1	a. Bunch grasses (<i>Poa secunda</i> , <i>Nasella cernua</i> , <i>Nasella pulchra</i> , <i>Sitanion hystrix</i> , <i>Achnatherum speciosa</i>)	Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	a. Seed production [presence of inflorescences (sexual) or new genets (asexual)]	Varies depending on species (February-May)	Need to identify sites where we want to maintain/enhance bunchgrasses; e.g. cultivated areas? (Might be too difficult to restore); 50% threshold is currently a hypothesis; may vary annually; also depends on the relative contribution of seeds and seedlings to population growth rates (e.g., sensitivity analysis needed). Need to determine the value of the variable.		Drought; inappropriate grazing, invasive plant species				

Management Objectives & Variables											
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
a. Bunch grasses (Poa secunda, Nassella cernua, Nassella pulchra, Sitanion hystrix, Achnatherum speciosa)	Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	b. Recruitment of new individuals and Retention of existing. Measure through cover and frequency.	Recruitment and survival of new individuals. Maintain or enhance the average frequency of Poa secunda and Nassella spp. seedlings at more than 20 per plot during a five year period. Initiate active restoration when the average frequency of Poa secunda and Nassella spp. seedlings is ≤ 10 seedlings per plot. Frequency plot = large "inter-plot areas"	February for seedlings; late spring (May/June) for new juveniles and adults	Currently don't know necessary recruitment rates to sustain populations. Determine if livestock grazing can be used to create germination microsites & seedling establishment opportunities. During our study, Poa secunda frequency was higher in plots not subject to grazing in annual grasslands & in soil type 7. Poa frequency was higher in plots subject to grazing in USSS, & in soil types 3 & 8. During our study, Nassella spp. frequency decreased as cattle density increased in valley & foothill grassland & shrub scrub communities with soil types 7 & 8, but increased in soil type 3. It has been assumed that bunchgrasses are limited by direct competition with exotic annual grasses (EAG), & that properly timed grazing/biomass reduction can decrease EAG & increase bunchgrass cover/abundance. However, our study results revealed contradictory evidence, suggesting that additional mechanisms are operating. Thus, we plan to establish a research program to test additional tools, including dormant (June-Oct) season prescribed burning & seeding, that may allow for the enhancement of bunchgrass populations.		Drought; inappropriate grazing, invasive plant species	In dry annual grasslands eco-systems, like those found at the Carrizo, the status of knowledge is Low; in more mesic annual grassland systems statewide, the status of knowledge is High.	Medium (Christian et al. grazing analyses for 1997-2003 period at the Carrizo; Kimball and Schiffman (2003)).	Christian et al. (in prep); Stromberg et al., editors (2007); Kimball and Schiffman (2003); Hayes and Holl (2002); Brown and Rice (2000); Dyer and Rice (1999); Hamilton et al. (1999); Olff and Ritchie (1998); Dyer et al. (1996); Menke (1992).	Caroline Christian; Mark Stromberg; Kevin Rice; Paula Schiffman

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2a3 a. Bunch grasses (<i>Poa secunda</i> , <i>Nasella cernua</i> , <i>Nasella pulchra</i> , <i>Sitanion hystrix</i> , <i>Achnatherum speciosa</i>)	Maintain stable size structure; PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	Cover, basal diameter	Maintain range of sizes.	February-May	Requires long-term demographic work to determine what actual stable stage/age structure is. This would require separate demographic studies for each species.		Drought; inappropriate grazing, invasive plant species				

Management Objectives & Variables											
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2a4 a. Bunch grasses (<i>Poa secunda</i> , <i>Nasella cernua</i> , <i>Nasella pulchra</i> , <i>Sitanion hystrix</i> , <i>Achnatherum speciosa</i>)	Maintain or enhance spatial distribution of bunch grass populations PRIMARY (Maintain community parameters) (BIO-2, BIO-14)	Population boundary	Maintain or enhance population boundary within 'range of natural variation' (e.g., allowing for annual expansion and contraction)	February-May	Use remote imagery as tool to estimate changes in distribution See 2a2 (bunchgrass populations)		Disturbance history (esp. tilling); drought; inappropriate grazing; invasive plant species	In dry annual grasslands eco-systems, like those found at the Carrizo, the status of knowledge is Low; in more mesic annual grassland systems statewide, the status of knowledge is High.	Medium (Christian et al. grazing analyses for 1997–2003 period at the Carrizo; Kimball and Schiffman (2003)).	Christian et al. (in prep.); Stromberg et al., editors (2007); Kimball and Schiffman (2003); Hayes and Holl (2002); Brown and Rice (2000); Dyer and Rice (1999); Hamilton et al. (1999); Olff and Ritchie (1998); Dyer et al. (1996); Menke (1992).	Caroline Christian; Mark Stromberg; Kevin Rice; Paula Schiffman
2b1 b. Rhizomatous species (<i>Distichlis spicata</i> , <i>Leymus triticoides</i>)	Maintain or enhance population patch size PRIMARY (BIO-2, BIO-14)	Patch size (e.g. %cover over larger scale)	Maintain or enhance patch size (No value for this variable yet)	Anytime (preferably peak growth period)	c4 grasses?		Drought; inappropriate grazing, disturbance history; competition from invasive plant species				

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2b2	b. Rhizomatous species (Distichlis spicata, Leymus triticoides)	Maintain or enhance spatial distribution PRIMARY (BIO-2, BIO-14)	Population boundary	Maintain or enhance distribution (No value for this variable yet)	Anytime (peak growth period)	Use remote imagery as tool to estimate changes in distribution					
							Drought; inappropriate grazing; disturbance history; competition from invasive plant species				

Management Objectives & Variables											
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2c1 c.Native annual flora	Maintain or enhance native annual species richness and cover PRIMARY (BIO-2, BIO-14)	Native annual species richness and cover	>= current levels. Maintain or enhance the average relative cover of native annual plant species at more than 20% and the average native annual plant species richness at more than 5 during a five year period. Initiate active restoration when the average relative cover of native annual plant species is ≤ 20% and/or the average native annual plant species richness is ≤ 3.5 during a five year period. Plant cover and richness = Daubenmire plot.	Spring-active: March-May; Summer-active: June-October	During our study, native annual plant species richness/cover were lower in all plots subject to grazing. Under the conditions tested, Nov-May grazing was not the proper tool for maintaining or enhancing native plant richness or cover. It has been assumed that native annual grasses/forbs are limited by direct competition with EAG, & that properly timed grazing can decrease EAG & increase native richness/cover. Our study revealed contradictory evidence, suggesting that additional mechanisms are operating. Thus, we plan to establish a research program to test 1) additional tools, including dormant season grazing and prescribed burning as well as seeding, which may allow for the enhancement of native annual plants, & 2) the mechanisms that may be acting to limit native annual flora. Part of this effort will involve testing the assumption of a link between RDM & native cover / richness. Does RDM have a relationship to native species richness or cover in the spring?		Invasive plant species; inappropriate grazing; drought	In dry annual grasslands eco-systems, like those found at the Carrizo, the status of knowledge is Low; in more mesic annual grassland systems statewide, the status of knowledge is High.	Medium (Christian et al. grazing analyses for 1997-2003 period at the Carrizo)	Christian et al. (in prep.); Kimball and Schiffman (2003); Olff and Ritchie (1998); D'Antonio and Vitousek (1992); Stromberg et al., editors (2007)	Caroline Christian; Paula Schiffman; Carla D'Antonio

Management Objectives & Variables											
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2c2	c. Native annual flora	Maintain native annual seed bank PRIMARY (BIO-2, BIO-14)	Seed production during favorable years	"Adequate" proportion of population producing seeds	Varies depending on species (April-October)	It has been assumed that grazing before native annual forb seedset will likely reduce the amount of seed that makes it in to the seedbank. We assume that if more native forb seed makes it in to the seed bank its cover and richness will increase. We may need a seed bank census to evaluate these assumptions.	Invasive plant species; inappropriate grazing; drought	In dry annual grasslands eco-systems, like those found at the Carrizo, the status of knowledge is Low; in more mesic annual grassland systems statewide, the status of knowledge is Medium.	Low	Stromberg et al., editors (2007)	Carla D'Antonio

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2c3 c.Native annual flora	Reduce abundance of exotic annual grasses and forbs SECONDARY (BIO-21)	% cover, richness, abundance, height of exotic species	< current levels	Spring-active: March-May; Summer-active: June-October	During our study, EAG and EAF cover was not reduced across any plots subject to grazing - EAG increased in soil types 3 and 7, and was unchanged in type 8. Under conditions tested, Nov-May grazing was not the proper tool for reducing EAG or EAF. It has been assumed that properly timed grazing reduces EAG, and that EAG reduces native richness/cover through direct competition. Our study revealed that Nov-May grazing does not reduce EAG. Thus, we plan to establish a research program to test 1) additional tools, including dormant season grazing and prescribed burning, which may reduce EAG, and 2) mechanisms that may be acting to limit native richness/cover.		Invasive plant species; inappropriate grazing; drought	in dry annual grasslands ecosystems, like those found at the Carrizo, the status of knowledge is Low; in more mesic annual grassland systems statewide, the status of knowledge is High	Low - historical sites and distribution generally known but densities unknown for most of the Carrizo Medium (Christian et al. 1997-2003 period at the Carrizo)	Christian et al. (in prep.); Ritchie (1998); D'Antonio and Vitousek (1992); Stromberg et al., eds. (2007)	Caroline Christian; Paula Schiffman; Carla D'Antonio

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2g Grassland Community	Maintain matrix of bunchgrasses and native annual plant species PRIMARY (Maintain community parameters) (BIO-8)	Composition and % cover of non-bunchgrass plant species. Frequency of Poa secunda and Nassella species seedlings; relative or absolute cover of native annual plant species; native annual plant species richness.	See 2a2 and 2c1.	March-May	Goal is to enhance bunchgrass populations, while at the same time preserving or enhancing populations of native forbs and grasses (e.g., we don't want management of native bunchgrasses to compromise native forbs). It has been assumed that by reducing EAG we can increase native cover/richness. Our study results suggest that grazing Nov-May does not decrease EAG, increase native forbs, or increase native bunchgrass populations overall. Therefore, we plan to test additional tools that may allow us to achieve our plant community goals, including dormant season (June-Oct) grazing & prescribed burning and seeding of native species.		Drought; inappropriate grazing, invasive plant species	in dry annual grasslands ecosystems, like those found at the Carrizo, the status of knowledge is Low; in more mesic annual grassland systems statewide, the status of knowledge is High	Medium (Christian et al. grazing analyses for 1997-2003 period at the Carrizo; Kimball and Schiffman (2003)	Christian et al. (in preparation); Stromberg et al., editors (2007); Kimball and Schiffman (2003); Hayes and Holl (2002); Brown and Rice (2000); Olf and Ritchie (1998); Dyer and Rice (1997).	Caroline Christian; Mark Stromberg; Kevin Rice; Paula Schiffman.
2d	d. Native perennial herbs & bulbs	TBD (BIO-14)									

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2e1 e. Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Maintain or enhance current cover and population distribution PRIMARY (BIO-8, BIO-14)	% cover, areal extent	> or = to current amount	Summer active: June-November; Winter active: December-May; depends on species	In appropriate habitats, depending on landscape setting and soils; fire is detrimental to some shrub species (need to look at relationship between fire interval, fire intensity and recruitment, maintaining population; grazing during summer is detrimental)						
2e2 e. Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Recruitment in favorable years to maintain age structure PRIMARY (BIO-8, BIO-14)	Seedling survival during and following recruitment years	Recruitment and survival of new individuals; range of sizes and ages	Depends on species							
2e3 e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community	Enhance the areal extent of this community. (BIO-8, BIO-14)	acres	> or = to current amount	anytime (remote sensing)	Grazing reduces the cover of scrub/shrub species, and encourages greater grass and forb cover. Seeding reduces seed limitation and increases the potential areal extent of those species. Update vegetation maps.			high	medium	Stromberg et al., editors (2007)	Carla D'Antonio

Management Objectives & Variables											
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e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community	Enhance native spp cover and richness within this community. (BIO-8, BIO-14)	Cover and richness of native spp.	> current levels		During our study, native plant richness/cover were lower in subshrub scrub plots subject to grazing. Under the conditions tested, Nov-May grazing was not the proper tool to enhance native richness/cover in the USSSS understory. It has been assumed that native annual forb cover/richness is limited by competition with EAG, & that properly timed grazing can decrease EAG & increase native cover / richness. Our study revealed contradictory evidence, suggesting that additional mechanisms are operating. Thus, we plan to establish a research program to test 1) additional tools that may allow for the enhancement of native cover/richness 2) the mechanisms that may be acting to limit native cover/richness.			low	Medium (Christian et al. grazing analyses for 1997-2003 period at the Carrizo)	Christian et al. (in prep.); Stromberg et al., editors (2007)	Caroline Christian; Paula Schiffman; Carla D'Antonio

Management Objectives & Variables												
Conservation Target		Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
2e6	e. Native shrub flora: Valley Sink Scrub Community	Enhance native spp cover and richness within this community. (BIO-8,BIO-14)	Cover and richness of native spp.	> current levels								
2f1	f. blue and Alvord oaks	maintain and enhance populations (BIO-14)	reproduction (acorn production)	cyclical production (most years)	fall							
2f2	f. blue and Alvord oaks	maintain and enhance populations (BIO-14, BIO-8)	recruitment of new individuals	presence of seedlings/young trees	any							
2f3	f. blue and Alvord oaks	maintain and enhance populations (BIO-14, BIO-8)	understory habitat	presence of intact soils, leaf litter, diverse humus biota	any							
17a	soil crusts	maintain and enhance habitat (BIO-14)	geographic extent	increase of crust habitat	any	Bald areas with high species diversity are scattered over landscape; many washes with well developed crust layer; crust also scattered across landscape in and among vegetation; per Roger Rosentreter if can establish perennial grass species, open areas in between will be colonized by crusts.		fragmentation by animals (livestock, humans, horses, dogs etc) and vehicles (cars, bicycles, motorcycles etc.); deposition (getting buried) under dust/soil deposits; getting crowded out by dense vegetation	medium - much info on role, threats, restoration of crust available; California specific info lacking	medium - some distribution info known; some species known		Roger Rosentreter, 208-373-3824, roger_rosentreter@blm.gov; Jayne Belnap, jayne_belnap@usgs.gov

Management Objectives & Variables												
	Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Poten- tially relevant citations	Sug- gested experts to contact
17b	soil crusts	maintain and enhance habitat (BIO-14)	diversity	presence of a number of species: bryophytes, lichens, algae, cyano- bacteria	best during wet season							
17c	soil crusts	maintain and enhance habitat (BIO-14)	serial stage	mix of late and early successional species	best during wet season							
17d	soil crusts	maintain and enhance habitat (BIO-14)	physical integrity	not broken during dry season, intact	dry season							
12	Noxious Weeds (Hoary Cress, Tamarisk, Russian Knapweed, Bull thistle, yellow star thistle)	Decrease or eliminate distribution and abundance of key invaders (see list) PRIMARY (BIO-21)	presence; % cover, density	presence; <= distribution	Varies depending on species	All species unacceptable (eradicate), all have potential to spread.						

Management Objectives & Variables											
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34 Annual forage on Section 15 allotments	Manage annual biomass to protect soils from accelerated erosion and replenish soil nutrients through decomposition. (BIO-1, BIO-8)	RDM	RDM at least 500 lbs/acre at beginning of the next growing season.	October-November	Rangeland Health guideline for Cen Cal is 200 lbs/ac RDM. (0-25% slope) UC Ag & Nat Res. guideline is 300-400 lbs/ac RDM (0-20% slope). Caliente RMP guideline is 500 lbs/ac to allow 350 lbs/ac RDM (0-25% slope)	Compliance monitoring by BLM using Robel pole and estimated classes and also a modified comparative yield measurement.					Bartolome, Heady, Holecheck, Menke
Native animal species											
3a Giant Kangaroo Rat	Maintain or enhance current populations in core areas. PRIMARY (BIO-3, BIO-4)	GKR density (active) (over large scale)	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept	Need for demographic plots across landscape (grids with marked individuals); track populations, demographics, and habitat variables		Drought; accumulation of excessive amounts of biomass; inappropriate grazing (too little, too much)				

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
3b Giant Kangaroo Rat	Maintain or enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Distribution of active GKR	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept			Drought; accumulation of excessive amounts of biomass; inappropriate grazing (too little, too much)				
3c Giant Kangaroo Rat	Maintain suitable habitat structure in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	RDM < 1600 lbs/acre (dry mass) and GKR (>20 individuals / hectare).	fall, Oct-Nov	a. Non-linear relationship between biomass and GKR (hypothesis is that there is optimal range); vs. b) GKR modify own environment by reducing biomass; Assuming that biomass is important variable at time when GKR is clipping and clearing precincts; measures other than or in addition to RDM such as predator and prey bases may also be appropriate.		Drought; accumulation of excessive amounts of biomass; inappropriate grazing (too little, too much)				

Management Objectives & Variables

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3d Giant Kangaroo Rat	Maintain suitable shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-30%	Anytime	GKR decline in areas with shrub cover >30%; Heerman's correlated with shrub cover >30%		Drought; accumulation of excessive amounts of biomass; inappropriate grazing (too little, too much)				
3e Giant Kangaroo Rat	Prevent species disappearance from the Monument. (Alt 2. Non-core areas) (BIO-4, BIO-15)	Allow populations, distribution, and habitat structure to fluctuate naturally within non-core areas of CMS, TR, PHEP, CPC, and CPN subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as GKR core timing	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management. See also Management Guidelines to test actions proposed in core areas.						

Management Objectives & Variables										
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Suggested experts to contact
4a	Blunt-nosed Leopard Lizard	Biomass (herbaceous layer only)	<500 optimal; <1000 ok	Spring - Late April - Mid-May (post annual dry-up; after peak production)	Need to incorporate patch size component (e.g. what is minimum patch size of 'open area'?)		Shrub and herbaceous cover that exceeds habitat structure requirements			Germano, Juarez,
4b	Blunt-nosed Leopard Lizard	Presence/absence	One or more individual observed on single visit in favorable conditions; several seen on repeated visits	May and June	CDFG - 17 day census; other sampling intervals used (Saslaw et al., 6 days)		Shrub and herbaceous cover that exceeds habitat structure requirements		CDFG 2004 survey	
4c	Blunt-nosed Leopard Lizard	Shrub cover (burrow availability)	Inadequate number/density of open/available burrows AND <5-20% shrub cover	Anytime	Thermoregulation; habitat structure; prey base; When burrows are unavailable, shrub cover is more important.		Inadequate number/density of open / available burrows AND <5-20% shrub cover. Adequate burrow availability directly correlated with adequate kangaroo rat population.			
4d	Blunt-nosed Leopard Lizard	Shrub cover	0-30%	Anytime	Thermoregulation; habitat structure; prey base; Negative correlation between BNLL and shrub cover > 30%.		Shrub and herbaceous cover that exceeds habitat structure requirements			

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4e Blunt-nosed Leopard Lizard	Maintain burrows in core areas. SECONDARY (BIO-3, BIO-4)	Burrow density and distribution	Common and available. Suitable burrows present with very few altered by human-induced causes. Small mammal burrowing activity is evident and not reduced by management activities. Few (<10%) disturbed	Adults: May-August; hatchlings: July-August	Need burrows to escape predators; thermoregulation; hibernation		Shrub and herbaceous cover that exceeds habitat structure requirements				

Management Objectives & Variables

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4f Blunt-nosed Leopard Lizard	Prevent species disappearance from the Monument. (All areas) 2. Non-core areas (BIO-4, BIO-15)	Allow populations, and herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, CPC, and CFS.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same timing as in BNLL core areas	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management. See also Management Guidelines to test actions proposed in core areas.						
8a Kit Fox	Maintain and enhance populations in core areas. (BIO-3, BIO-4)	Kit fox abundance	>= current population size	quarterly	If populations declining, may need to look at fecundity and juvenile survival. SJKF function at larger scale than other spp. Distribution is different than before. We need to keep in focus to learn more.		Build up of excessive amounts of biomass; predation; inappropriate grazing (too much, too little); fluctuating prey base			Recovery Plan for Upland Species of the San Joaquin Valley, CA, USFWS	Brian Cypher, 661-837-5061, bcypher@esrp.org

Management Objectives & Variables											
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8b	Kit Fox	Predator abundance	Below "detrimental" levels	quarterly	Needs to be determined		Build up of excessive amounts of biomass; predation; inappropriate grazing (too much, too little); fluctuating prey base				
8c	Kit Fox	Kit fox distribution	>= current distribution	quarterly	If distribution declining, may need to look at fecundity and juvenile survival		Build up of excessive amounts of biomass; predation; inappropriate grazing (too much, too little); fluctuating prey base				
8d	Kit Fox	Shrub cover	<30%	Anytime	Increased shrub cover associated with increase in fox mortality (coyotes)		Build up of excessive amounts of biomass; predation; inappropriate grazing (too much, too little); fluctuating prey base				

Management Objectives & Variables											
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								throughout range (high, medium, low)	- Carrizo (high, medium, low)	Potentially relevant citations	
8e Kit Fox	Maintain or enhance suitable habitat structure: veg. ht. in core areas. (BIO-3, BIO-8)	Vegetation height	< Kit fox eyelevel (< 8 inches); patch size?	Anytime	affects prey base, predation rates		Build up of excessive amounts of biomass; predation; inappropriate grazing (too much, too little); fluctuating prey base				
8f Kit Fox	Maintain prey abundance (nocturnal rodents, other small mammals) in core areas. (BIO-3, BIO-4)	Abundance of nocturnal mammals (jackrabbits, cottontails, kangaroo rats, etc.)	Absence, low numbers (need to look at data to determine whether there are thresholds)	quarterly			Build up of excessive amounts of biomass; predation; inappropriate grazing (too much, too little); fluctuating prey base				

Management Objectives & Variables

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10a San Joaquin Antelope Squirrel	Maintain suitable habitat structure: herbaceous biomass in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	<1600 lbs/acre and GKR (> 20 individuals per hectare)	Oct-Nov, before rains	prefer open structure, similar to GKR (but SJAS don't manipulate biomass like GKR). Prefer shrubs but can occur without shrubs. Measures other than or in addition to RDM such as predator and prey bases may also be appropriate.						
10b San Joaquin Antelope Squirrel	Maintain/enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Presence of individuals	>= existing distribution. 2 or more individuals on std. transect used to locate core areas.	Spring through Summer	Need to determine distribution						
10c San Joaquin Antelope Squirrel	Maintain suitable habitat structure: shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-50%	Anytime	Populations decline with shrub cover > 50%; assuming a reduction in grass/forb production						

Management Objectives & Variables											
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10d San Joaquin Antelope Squirrel	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, suitable herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, and CPC subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as SJAS core timing	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management. See also Management Guidelines to test actions proposed in core areas.						
30 bats - pallid	TBD										

Management Objectives & Variables											
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18 Burrowing owl	Maintain current distribution and population size (BIO-4)	nesting pairs with successfully fledged young	>= current levels	late May-July	Carrizo is one of four study sites (Carrizo, Lemoore, SF Bay Area, Imperial Valley); represents grassland area; predation is high in Carrizo compared to other sites. Assume burrow availability not limiting factor.		predation	medium - high California wide study mostly completed, monograph being prepared by D. Rosenberg	medium - high 1997 - 2003 data collected; many papers / reports produced; comprehensive monograph in prep now; winter use pattern not known; predation not understood		Dan Rosenberg, Utah State University, 435-797-8167, dan.rose@uconn.edu
11a Fairy Shrimp	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence in all known or potential pools	>= current frequency of occurrence across range	Late January - March	<i>Artemia</i> and <i>Lindahli</i> widespread and abundant, the 'abnoxious shrimp'. <i>B. lynchi</i> north of Monument, but not detected on Monument yet. <i>B. longiantenna</i> on north and south end. <i>B. campestris</i> at Ansin sag pond and Soda Lake - only 2 places found in CA although occurs in other states. <i>B. mackini</i> at Simmler Road and Soda Lake, and 7-mile Road.		modification of hydrologic regime or water chemistry	medium - distribution known, but other factors not known	medium - good distribution map of <i>B. longiantenna</i> and other species; but water chemistry, "phenology", ecological relation-ship unknown; <i>B. lynchi</i> distribution less known, could be present but just not detected yet	draft vernal pool recovery plan; federal register notices	Mary Belk, 210-224-7743, dbelk@teexas.net

Management Objectives & Variables

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11b Fairy Shrimp	Replace and maintain cyst bank (BIO-4, BIO-12)	Presence of females with mature cysts	Presence of females with mature cysts	Late January - March	If mature cysts found on females, cyst bank is being replaced		females not living long enough to produce mature cysts to replace cyst bank	low - medium - methods probably developed for measuring cyst output but may not be practical for "everyday" monitoring	low - medium - unknown if assumption of mature cysts = cyst bank replacement is valid; what is mature cyst?		
13a Sphinx moth	Maintain current distribution, population size and range (BIO-4)	Presence / absence in all known locations or potential habitat	>= current distribution	Late January - mid-February (adult emergence)	Assume that population is being maintained (including pupa-bank) if adults emerge and Camissonia is persistent throughout the reproductive/flight season (moth)		trampling of Camissonia, eggs, larva & resting adults; degradation or loss of Camissonia germination sites	low - E. euturpe distribution uncertain with new population discoveries; if Carrizo and Cuyama pops are E. euturpe, much more widespread than previously thought; genetic relationship to Lassen, Atascadero, Pinnacles and Walker Basin pops needs to be done	medium - Peter Jump has good habitat "search image" for within Carrizo; much of likely habitat surveyed; high confidence of E. euturpe by Jump and others using traditional taxonomic methods; genetic work not completed yet		Peter Jump, 805-933-9912, hpjump@earthlink.net, Ken Osborne, Paul Johnson

Management Objectives & Variables											
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13b Sphinx moth	Maintain suitable habitat (BIO-4, BIO-8)	Sparsely vegetated washes with Camissonia campestris	Camissonia is common in favorable years	Late January - late March (plant presence)	Trampling (grazing and human use) in washes is detrimental for host plant, adult moths and larvae		trampling of Camissonia; degradation or loss of Camissonia germination sites	see above	see above		
14 Spade-foot toad	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence of tadpoles in all known or other ponds	Water present long enough to complete life cycle	Breeding season: January - April	Livestock use could be detrimental if hydrology altered (e.g. water consumption), water chemistry effects unknown; disturbance to ponds could be detrimental to eggs; Little known about upland habitat		water drying up before tadpoles can transform; trampling of eggs	medium - emergence cues not understood; distribution and abundance not known	medium - many locations known but not on GIS map yet	draft vernal pool recovery plan	Jennifer Matos, 818-677-2158, jennifer.matos@csun.edu
16 Vernal pool invertebrates	Maintain current distribution, population size and species diversity (BIO-4, BIO-12)	Presence/absence in all known or potential locations	water present long enough to complete life cycle	Late January - March	observed in water troughs, vernal pools, with and without tadpoles or fairy shrimp; observed in locations that supported fairy shrimp earlier the same season.		water drying up before life cycle is completed? modification of hydrologic regime or water chemistry.	low - California wide ostracod survey underway by Mark Angelos, status of knowledge for other species unknown	low - distribution, species and relative importance unknown		Mark Angelos, Natural History Museum of LA, 310-615-9797, meangelos@mindspring.com

Management Objectives & Variables											
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		Variable	Persistence of current populations; suitable shrub cover for nesting structure; saltbush or sphaedra >3' in stands, found in drainages or alluvial fans; open/bare ground for foraging away from shrubs.	Jan-March	Assume shrub objectives cover this target?		Wildfire.	Medium.	Low, habitat and annual sightings documented as well as some nest sites known; little known about fledgling success	CDFG Bird species of special concern 2008.	Al Schmierer, S. Fitton.
26 LeConte's thrasher	Maintain current nesting populations (BIO-4, BIO-8)	Presence of LETh in suitable habitat; density of breeding pairs, active nests, # of fledglings									

Management Objectives & Variables

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5a Mountain Plover	Maintain at least 3 of the core areas of 50-200 acres suitable for plovers by Sept. 1 if no suitable habitat available in non-core areas on the Monument. PRIMARY (BIO-3, BIO-4, BIO-5)	suitable by Sept 1 thru when they leave	low vegetation (< 2 inches) and patch size	30 days before they arrive	Winter use depends on very low structure, whether naturally occurring or management-induced. 3 areas maintained are chosen to include historical use in North, Central and Southern areas of the Monument.	Annual winter surveys	Vegetation height greater than habitat structure requirements. Shrub and herbaceous cover that exceeds habitat structure requirements		Medium - we know CPNM provides habitat free of pesticides; areas that have been burned, grazed by sheep and livestock in the valley floors have provided good habitat. plovers prefer lack of or very low vegetation height and 50-200 acre patch size though smaller areas may be used.		Sam Fitton, 513-523-4599, sfitton@woh.rr.co m Kevin Hunting, 916-324-9265, khunting@dfg.ca.gov Fritz Knopf

Management Objectives & Variables												
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5b	Mountain Plover	Maintain low shrub cover in core areas. SECONDARY (BIO-5, BIO-8)	Shrub cover	< 5%; with minimum patch size of 10-200 acres	October-November	Plovers avoid areas with shrubs		Shrub and herbaceous cover that exceeds habitat structure requirements		medium - historical habitat sites well known; birds are monitored annually and detections included in fall raptor surveys; distribution map needs to be generated; annual MOPL surveys need to be continued	Distribution and Habitat Associations of the Mountain Plover in California. Hunting, 916-324-9265, khunting@dfg.ca.gov Fritz Knopf	Sam Fitton, 513-523-4599, sfitton@woh.rr.com Kevin Hunting, 916-324-9265, khunting@dfg.ca.gov Fritz Knopf
5c	Mountain Plover	Maintain low biomass in core areas. SECONDARY (BIO-5, BIO-8)	Biomass	<500 lbs/acre	October-March	Winter use depends on very low structure, whether naturally occurring or management-induced. Structure appears to be the more limiting factor, unclear about biomass		Shrub and herbaceous cover that exceeds habitat structure requirements		Medium - areas that have been burned, grazed by sheep and livestock in the valley floors have provided good habitat		
29	condor	TBD (BIO-6)										
25	sandhill crane	TBD (BIO-4)										

Management Objectives & Variables

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1a Pronghorn	Maintain suitable vegetation height for fawning PRIMARY (BIO-16, BIO-8)	Vegetation height	15-25 inches herbaceous veg over 80% of the fawning area (areas of <15% slope)	March-April	Importance of patch size/extent of fawning area unknown		Drought; inappropriate grazing			Pronghorn Ecology and Management, O'Gara and Yoakum; USGS studies	Jim Yoakum
1b Pronghorn	Maintain suitable shrub cover for fawning. PRIMARY (BIO-16, BIO-8)	Shrub cover, density and distribution	patches of 5-30% cover; 15-25 inches tall, Distribution of patches?	Anytime	In appropriate habitats; currently using cover as surrogate for density and pattern of distribution		Drought; inappropriate grazing			Kindshee (blue mt. study) reports 5-30%	
1c Pronghorn	Maintain suitable forage. PRIMARY (BIO-16)	Forb abundance and % cover	Maintain or exceed current cover and abundance of palatable forb species	Two sampling dates: March-April; August	Forbs important to doe fecundity and fawn survival; before breeding season, after fawning		Drought; inappropriate grazing; invasive by noxious, unpalatable plant species				
1d Pronghorn	Provide adequate water PRIMARY (BIO-16)	available water	water source every two miles	year round							
1e Pronghorn	Maintain or enhance fawn-to-doe ratios SECONDARY (BIO-16)	fawn:doe	Maintain a minimum of 25 fawns/100 does	July	Fawn production and survival is key to population health; will vary annually (though not clearly linked patterns to climatic variation).						
1f Pronghorn	Enhance population size SECONDARY (BIO-16)	number of pronghorn	>= 250	January	Need to determine carrying capacity beyond threshold of 250						

Management Objectives & Variables

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1g	Pronghorn Maintain buck-to-doe ratio SECONDARY (BIO-16)	buck:doe	Maintain a minimum of 25 bucks/100 does + minimum population size of 250	January	This management ratio defines a healthy population; If hunting program is reinitiated, population dynamics need to be modeled to determine ideal ratio.						
1h	Pronghorn Promote travel across landscape (BIO-16)	Fences	All fences modified for pronghorn passage/unnecessary fences removed	Anytime	Fences restrict movement of both individuals and herds; tumbleweeds pile up along fences and further restrict movement even if modified	Fences modified or removed 2-3 times/yr but not monitored as to their success					
15a	Elk Maintain and expand foraging habitat. (BIO-17)	Presence of elk	Elk use in 90% of the Avena belt within the CFN and CPN subregions.	November	Elk prefer areas that have been ungrazed for ___ # of years. (based on 2005 & 2006 observations of collared elk that were 30/31 days in nongrazed and 1/31 days in grazed areas)				low knowledge on diet.	Big book of Elk.	Mc-Cullough, Bra-shares
15b	Elk Maintain suitable vegetation height for calving. PRIMARY (BIO-17, BIO-8)	Vegetation height	>15 inches veg over 80% of the calving area (within appropriate area?)	March-April			Drought; inappropriate grazing				

Management Objectives & Variables

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15c	Elk	Provide adequate water PRIMARY (BIO-17)	available water	year round							
15d	Elk	Prevent cow displacement during calving SECONDARY (BIO-17)	-	-	-	-	-	-	-	-	-
15e	Elk	Maintain or enhance calf-to-cow ratios SECONDARY (BIO-17)	calf:cow	July	Calf production and survival is key to population health; will vary annually (though not clearly linked patterns to climatic variation).						
15f	Elk	Enhance population size SECONDARY (BIO-17)	number of elk	November	Need to determine carrying capacity beyond this threshold						
15g	Elk	Maintain bull-to-cow ratio SECONDARY (BIO-17)	bull:cow	November	This management ratio defines a healthy population; If hunting program is reinitiated, population dynamics need to be modeled to determine ideal ratio.						

Management Objectives & Variables										
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Suggested experts to contact
24a	Grasshopper sparrow	Maintain suitable vegetation structure for nesting PRIMARY. (BIO-4, BIO-8, BIO-18))	Vegetation height = 10" to 20+", composed of annual and/or perennial grasses with some scattered shrubs-w/a pref. for bunch grasses; height for perching and cover but open space for quick movement to draw predators from nest (patchiness)	Dec-Jan	In most years only mgmt. necessary will be protection of habitat. Need to develop annual monitoring for species and habitat.	Plots set up for monitoring	Drought, wildfire.	Low.	Low.	A. Jones
24b	Other grassland birds	TBD (BIO-4, BIO-8, BIO-18)								
27	tricolor blackbirds	TBD (BIO-4, BIO-8)								

Management Objectives & Variables

Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Management assumptions / notes (shaded indicates research priority)	Current Monitoring of the Variable Value	Factors Affecting Management Objectives and Variables	Status of knowledge throughout range (high, medium, low)	Status of knowledge - Carrizo (high, medium, low)	Potentially relevant citations	Suggested experts to contact
28a	landscape scale ecosystem functioning	diversity of habitats			Prevent disruption of whole systems. Fence re-alignments on ecosystem boundaries. Make sure landscape-ecosystem functioning is not compromised by actions or distribution of actions. Maintain diversity of habitats and diversity of native species within such habitats.						
28b	landscape scale ecosystem functioning	spp diversity within habitats									
29	Long-billed curlew	TBD									
30	Wintering raptors	TBD (BIO-4, BIO-18)									

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Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
<i>Native plant species</i>						
9a	Caulanthus	Maintain distribution and size of existing populations (BIO-2, BIO-14)	Distribution and population size; reproducing populations	>= current levels	January - May	No recommended action to meet this objective. CONSTRAINT: No grazing winter and spring in known habitat. SECTION 15: No grazing winter and spring in known habitat.
9b	Caulanthus	Restore populations to areas of known historical range (BIO-14, BIO-8)	Success (establishment and reproduction) of restored populations in historical range	Self-sustaining populations in introduced range	January - May	NA
19	wooly threads	Maintain current distribution and population size (BIO -2, BIO-14)	Presence/absence in known or appropriate locations	>= current distribution and condition across landscape relative to year's precipitation	Feb-Apr	SECTION 15: No specific restrictions if grazing continues to be non-detrimental to populations.
20a	Lepidium jaredii	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally (as in 2008)	Apr-May	No recommended action to meet this objective. CONSTRAINT: don't graze Lepidium habitat
20b	Lepidium jaredii	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays (as in 2008)	Mar-May	No recommended action to meet this objective. CONSTRAINT: don't graze Lepidium habitat
32a	Amsinckia vernicosa var. furcata	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally	Mar-May	Evaluate effects of grazing, if species is within treatment area
32b	Amsinckia vernicosa var. furcata	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays	Mar-May	Evaluate effects of grazing, if species is within treatment area
33a	Acanthomintha obovata ssp. cordata (clay species)	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally	Apr-Jul	Evaluate effects of grazing, if species is within treatment area

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
33b Acanthomintha obovata ssp. cordata	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays (like in 2008)	Apr-Jul	No recommended action to meet this objective.	Evaluate effects of grazing, if species is within treatment area
22 Clay species	Maintain current distribution and population size	Presence/absence in known or appropriate locations	>= current distribution and condition across landscape relative to year's precipitation	Mar-Jun	No recommended action to meet this objective. CONSTRAINT: No grazing populations of Antirrhynum ovatum	Evaluate the effects of grazing on clay species.
31 a. Bunch grasses (Poa secunda, Nasella cernua, Nasella pulchra, Sitanion hystrix, Achnatherum speciosa)	TBD	0	0	0		
2a1	Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	a. Seed production [presence of inflorescences (sexual) or new genets (asexual)]	Presence of inflorescences in > 50% of population	Varies depending on species (February-May)	No recommended action to meet this objective. CONSTRAINT: No grazing before seedset (starting Feb for POSE and March for NACE) until seedfall.	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
2a2	a. Bunch grasses (Poa secunda, Nassella cernua, Nassella pulchra, Sitanion hystrix, Achnatherum speciosa) Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	b. Recruitment of new individuals and Retention of existing. Measure through cover and frequency.	Recruitment and survival of new individuals. Maintain or enhance the average frequency of Poa secunda and Nassella spp. seedlings at more than 20 per plot during a five year period. Initiate active restoration when the average frequency of Poa secunda and Nassella spp. seedlings is ≤ 10 seedlings per plot. Frequency plot = large "inter-plot areas"	February for seedlings; late spring (May/June) for new juveniles and adults	ACTION: Poa secunda: In valley subshrub scrub communities with soil types 3 and 8, apply grazing Nov-May (the grazing timing used from 1997-2003). Nassella species: In valley grassland and subshrub scrub communities with soil type 3, apply grazing Nov-May (the grazing timing used from 1997-2003). CONSTRAINT: Set max. utilization of the current annual year's growth between 25-40% initially, considering the timing of grazing and plant phenology, the resource condition, and the site resiliency. Poa secunda: In valley and foothill grassland communities with soil type 7, avoid grazing Nov-May (the grazing timing used from 1997-2003). In pastures with POSE and recent cultivation: Avoid grazing. Nassella species: In valley and foothill grassland and subshrub scrub communities with soil types 7 and 8, avoid grazing Nov-May (the grazing timing used from 1997-2003). CONSTRAINT: Prevent grazing in some areas with Bluegrass and some areas with Needlegrasses to allow maintenance of older/ larger plants. Avoid livestock grazing when inflorescences are developing and present. (Feb. for bluegrass, March for needlegrass).	Set up a study to test the mechanisms by which POSE and NACE increase at the CPNM.
2a3	a. Bunch grasses (Poa secunda, Nassella cernua, Nassella pulchra, Sitanion hystrix, Achnatherum speciosa) Maintain stable size structure; PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	Cover, basal diameter	Maintain range of sizes.	February-May		

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
2a4 a. Bunch grasses (<i>Poa secunda</i> , <i>Nasella cernua</i> , <i>Nasella pulchra</i> , <i>Sitanion hystrix</i> , <i>Achnatherum speciosa</i>)	Maintain or enhance spatial distribution of bunch grass populations PRIMARY (Maintain community parameters) (BIO-2, BIO-14)	Population boundary	Maintain or enhance population boundary within 'range of natural variation' (e.g. allowing for annual expansion and contraction)	February-May	ACTION: <i>Poa secunda</i>: In valley subshrub scrub communities with soil types 3 and 8, apply grazing Nov-May (the grazing timing used from 1997–2003). <i>Nasella species</i>: In valley grassland and subshrub scrub communities with soil type 3, apply grazing Nov-May (the grazing timing used from 1997–2003). CONSTRAINT: Set max. utilization of the current annual year's growth between 25–40% initially, considering the timing of grazing and plant phenology, the resource condition, and the site resiliency. <i>Poa secunda</i>: In valley and foothill grassland communities with soil type 7, avoid grazing Nov-May (the grazing timing used from 1997–2003). In pastures with POSE and recent cultivation: Avoid grazing. <i>Nasella species</i>: In valley and foothill grassland and subshrub scrub communities with soil types 7 and 8, avoid grazing Nov-May (the grazing timing used from 1997–2003). SECTION 15: Set max. utilization of the current annual year's growth between 25–40% initially, considering the timing of grazing and plant phenology, the resource condition, and the site resiliency.	
2b1 b. Rhizomatous species (<i>Distichlis spicata</i> , <i>Leymus triticoides</i>)	Maintain or enhance population patch size PRIMARY (BIO-2, BIO-14)	Patch size (e.g. %cover over larger scale)	Maintain or enhance patch size (No value for this variable yet)	Anytime (preferably peak growth period)		

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
b. Rhizomatous species (Distichlis spicata, Leymus triticoides)	Maintain or enhance spatial distribution PRIMARY (BIO-2, BIO-14)	Population boundary	Maintain or enhance distribution (No value for this variable yet)	Anytime (peak growth period)		
2b2			>= current levels. Maintain or enhance the average relative cover of native annual plant species at more than 20% and the average native annual plant species richness at more than 5 during a five year period. Initiate active restoration when the average relative cover of native annual plant species is ≤ 20% and/or the average native annual plant species richness is ≤ 3.5 during a five year period. Plant cover and richness = Daubenmire plot.		No recommended action to meet this objective. CONSTRAINT: In valley and foothill grassland and scrub communities (soil types 3, 7, and 8), avoid grazing Nov-May (the grazing timing used from 1997–2003). When livestock grazing is applied to meet another target objective, avoid livestock use in spring during years and within pastures with exceptional expressions* of native annual plants. (* exceptional expressions = native annual spp make up 60%-80% of the total annual plant spp relative cover)	Evaluate the use of livestock to reduce fall RDM to a range that enhances native annual species composition in the spring. assumption = reduced RDM in fall promotes increase native annual species in spring so long as other factors are appropriate (timing and amount of rainfall, temperatures) Experimentally test a dormant season (June-October) grazing regime for the enhancement of native annual plant species richness and cover in select valley and foothill grassland community sites.
c. Native annual flora	Maintain or enhance native annual species richness and cover PRIMARY (BIO-2, BIO-14)	Native annual species richness and cover		Spring-active: March-May; Summer-active: June-October		
2c1						
c. Native annual flora	Maintain native annual seed bank PRIMARY (BIO-2, BIO-14)	Seed production during favorable years	"Adequate" proportion of population producing seeds	Varies depending on species (April-October)	No recommended action to meet this objective. CONSTRAINT: Avoid livestock use in green season and before seedfall.	
2c2						

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
2c3 c. Native annual flora	Reduce abundance of exotic annual grasses and forbs SECONDARY (BIO-21)	% cover, richness, abundance, height of exotic species	< current levels	Spring-active: March-May; Summer-active: June-October	No recommended action to meet this objective. CONSTRAINT: In valley and foothill grassland and scrub communities, in soil types 3, 7 and 8, avoid grazing Nov-May (the grazing timing used from 1997–2003).	Evaluate the use of livestock to reduce exotic summer annuals (tumbleweeds?).
2g Grassland Community	Maintain matrix of bunchgrasses and native annual plant species PRIMARY (Maintain community parameters) (BIO-8)	Composition and % cover of non-bunchgrass plant species. Frequency of Poa secunda and Nassella species seedlings; relative or absolute cover of native annual plant species; native annual plant species richness.	See 2a2 and 2c1.	March-May	ACTION: Complete actions for both 2a1/2a2 (Maintain or enhance bunch grass populations-reproduction and recruitment) and 2c1 (Maintain or enhance species richness and cover of native annual flora) The Management Objective would be accomplished by each of these actions, no additional action needed for the management objective alone.	
2d d. Native perennial herbs & bulbs	TBD (BIO-14)	0		0		
2e1 e. Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Maintain or enhance current cover and population distribution PRIMARY (BIO-8, BIO-14)	% cover, areal extent	> or = to current amount	Summer active: June-November; Winter active: December-May; depends on species	CONSTRAINT: Avoid grazing in summer or growing season for target shrub species. Remove livestock if shrubs are not meeting form class criteria (to be developed). Prevent grazing in some areas to allow maintenance of older/ larger plants. SECTION 15: Avoid grazing in summer or growing season for target shrub species. Remove livestock if shrubs are not meeting form class criteria (to be developed).	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
2e2 e. Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Recruitment in favorable years to maintain age structure PRIMARY (BIO-8, BIO-14)	Seedling survival during and following recruitment years	Recruitment and survival of new individuals; range of sizes and ages	Depends on species	No recommended action to meet this objective. CONSTRAINT: Avoid grazing in summer or growing season for target shrub species. Prevent grazing in some areas to allow maintenance of older/ larger plants.	Evaluate whether livestock grazing can provide germination microsites and seedling establishment opportunities for native shrubs.
2e3 e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community	Enhance the areal extent of this community. (BIO-8, BIO-14)	acres	> or = to current amount	anytime (remote sensing)		
2e4 e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community	Enhance native spp cover and richness within this community. (BIO-8, BIO-14)	Cover and richness of native spp.	> current levels	0	No recommended action to meet this objective. CONSTRAINT: In valley and foothill upper sonoran subshrub scrub communities (soil types 3, 7, and 8) avoid grazing Nov-May (the grazing timing used from 1997-2003).	Monitor and evaluate Nov-May grazing regime across Sec. 15 grazing leases to determine if valley and foothill upper sonoran subshrub scrub results from 1997-2003 monitoring study are supported across additional Carrizo scrub sites. Adjust subsequent grazing regime across Sec. 15 sites accordingly.
2e6 e. Native shrub flora: Valley Sink Scrub Community	Enhance native spp cover and richness within this community. (BIO-8, BIO-14)	Cover and richness of native spp.	> current levels	0	No recommended action to meet this objective. CONSTRAINT: No grazing. SECTION 15: No grazing.	
2f1 f. blue and Alvord oaks	maintain and enhance populations (BIO-14)	reproduction (acorn production)	cyclical production (most years)	fall	No recommended action to meet this objective. CONSTRAINT: minimize livestock feeding on acorns.	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
2f2	f. blue and Alvord oaks maintain and enhance populations (BIO-14, BIO-8)	recruitment of new individuals	presence of seedlings/young trees	any	No recommended action to meet this objective. CONSTRAINT: avoid grazing to minimize trampling of, and foraging on, young oaks. SECTION 15: Assess oak stands and individuals and consider site specific guidelines to meet objectives.	
2f3	f. blue and Alvord oaks maintain and enhance populations (BIO-14, BIO-8)	understory habitat	presence of intact soils, leaf litter, diverse humus biota	any	No recommended action to meet this objective. CONSTRAINT: keep livestock away from understory.	
17a	soil crusts maintain and enhance habitat (BIO-14)	geographic extent	increase of crust habitat	any	No recommended action to meet this objective. CONSTRAINT: minimize trampling in sensitive areas	investigate relationship of grazing to crusts and introduced weedy grasses
17b	soil crusts maintain and enhance habitat (BIO-14)	diversity	presence of a number of species (bryophytes, lichens, algae, cyanobacteria)	best during wet season	No recommended action to meet this objective. CONSTRAINT: minimize trampling in sensitive areas	investigate relationship of grazing to crust diversity
17c	soil crusts maintain and enhance habitat (BIO-14)	serial stage	mix of late and early successional species	best during wet season	No recommended action to meet this objective. CONSTRAINT: minimize trampling in sensitive areas	
17d	soil crusts maintain and enhance habitat (BIO-14)	physical integrity	not broken during dry season, intact	dry season	No recommended action to meet this objective. CONSTRAINT: minimize trampling in sensitive areas	
12	Noxious Weeds (Hoary Cress, Tamarisk, Russian Knapweed, Bull thistle, yellow star thistle) Decrease or eliminate distribution and abundance of key invaders (see list) PRIMARY (BIO-21)	presence; % cover, density	presence; <= distribution	Varies depending on species	No recommended action to meet this objective. CONSTRAINT: Avoid grazing of untreated populations to prevent spread. Continue to prevent supplemental feeding of livestock outside shipping corrals.	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
34	Annual forage on Section 15 allotments	RDM	RDM at least 500 lbs/acre at beginning of the next growing season.	October-November	SECTION 15: Livestock turnout: 1,000 lbs/ac. and 2" green growth, or 1,200 lbs/ac. without green growth. Livestock removal: 700 lbs/ac. at end of growing season (May 31) or if grazing is applied during summer, set another value that results in at least 500 lbs/ac RDM.	
<i>Native animal species</i>						
3a	Giant Kangaroo Rat Maintain or enhance current populations in core areas. PRIMARY (BIO-3, BIO-4)	GKR density (active) (over large scale)	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept	Action: Apply livestock grazing (when GKR density <20 individuals per hectare and RDM >1,600 lbs/acre and RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area. Remove livestock when minimums (1,000 lbs/acre RDM or biomass, depending on time of year) are reached, to create large suitable areas in the core area and/or a mosaic pattern in landscape.	Test effects of vegetation management prescriptions on habitat characteristics and population / demographics
3b	Giant Kangaroo Rat Maintain or enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Distribution of active GKR	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept	Action: Apply livestock grazing (when GKR density <20 individuals per hectare and RDM >1,600 lbs/acre and RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area. Remove livestock when minimums (1,000 lbs/acre RDM or biomass, depending on time of year) are reached, to create large suitable areas in the core area and/or a mosaic pattern in landscape.	Test the use of remote sensing or other means to evaluate distributions in core areas to develop distribution thresholds

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
3c Giant Kangaroo Rat	Maintain suitable habitat structure in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	RDM < 1600 lbs/acre (dry mass) and GKR (>20 individuals / hectare). Consider using a range to prevent dropping below desired lbs/acre between measurement and actual removal of cattle	fall, Oct-Nov	Action: Apply livestock grazing (when GKR density <20 individuals per hectare and RDM >1,600lbs/acre and RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area. Remove livestock when minimums (1,000 lbs/acre RDM or biomass, depending on time of year) are reached, to create large suitable areas in the core area and/or a mosaic pattern in landscape.. SECTION 15: Livestock turnout: 1,000 lbs/ac. and 2" green growth, or 1,200 lbs/ac. without green growth. Livestock removal: 700 lbs/ac. at end of growing season (May 31) or if grazing is applied during summer, set another value that results in at least 500 lbs/ac RDM.	Consider stubble height or level of utilization as as monitoring methods with or as opposed to RDM
3d Giant Kangaroo Rat	Maintain suitable shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-30%	Anytime	ACTION: Develop species specific protocol for measurements to assess shrub cover in key areas. Develop criteria to determine how to apply summer grazing in these areas with greater than 30% shrub cover. The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels
3e Giant Kangaroo Rat	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, distribution, and habitat structure to fluctuate naturally within non-core areas of CMS, TR, PHEP, CPC, and CPN subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as GKR core timing		

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
4a Blunt-nosed Leopard Lizard	Maintain suitable herbaceous structure in core areas. PRIMARY (BIO- 3)	Biomass (herbaceous layer only)	<500 optimal; <1000 ok	Spring - Late April - Mid-May (post annual dry-up; after peak production)	Action: Apply livestock grazing when biomass is greater than 1000 lbs/acre in areas within current distribution. Areas are a subset of GKR core areas and treatment areas may vary. Monitoring will determine distribution and size of treatment areas. SECTION 15: Allow livestock when biomass is greater than 1000 lbs/acre in areas within and adjacent to current distribution. Habitat structure to maintain open ground cover: 500- 1000 pounds biomass-RDM/acre during active BNLL season (April-September). Remove livestock when 500 lbs/acre are reached.	
4b Blunt-nosed Leopard Lizard	Maintain or enhance population in core areas. PRIMARY (BIO-3)	Presence/absence	One or more individual observed on single visit in favorable conditions; several seen on repeated visits	May and June	ACTION: Apply livestock grazing when regular observations decline from what is expected [One or more individual observed on single visit in favorable conditions; several seen on repeated visits] and when biomass is greater than 1000 lbs/acre in areas within and adjacent to current distribution. Habitat structure to maintain open ground cover: 500- 1000 pounds biomass-RDM/acre during active BNLL season (April-September). Remove livestock when 500 lbs/acre are reached.	
4c Blunt-nosed Leopard Lizard	Maintain suitable shrub cover in areas with unsuitable number/density of open/available burrows in core areas. PRIMARY (BIO-3, BIO-8)	Shrub cover (burrow availability)	inadequate number/density of open/available burrows AND <5-20% shrub cover	Anytime	ACTION: Modify grazing to promote shrub cover if < 5% and inadequate burrows.	
4d Blunt-nosed Leopard Lizard	Maintain suitable shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-30%	Anytime	ACTION: Develop species specific protocol for measurements to assess shrub cover in key areas. Develop criteria to determine how to apply summer grazing in these areas with greater than 30% shrub cover	

Management Objectives & Variables				Management Guidelines: Grazing		
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
4e Blunt-nosed Leopard Lizard	Maintain burrows in core areas. SECONDARY (BIO-3, BIO-4)	Burrow density and distribution	Common and available. Suitable burrows present with very few altered by human-induced causes. Small mammal burrowing activity is evident and not reduced by management activities. Few (<10%) disturbed	Adults: May-August; hatchlings: July-August	No recommended action to meet this objective.	
4f Blunt-nosed Leopard Lizard	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, and herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, CPC, and CFS.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as BNLL core timing	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels.
8a Kit Fox	Maintain and enhance populations in core areas. (BIO-3, BIO-4)	Kit fox abundance	>= current population size	quarterly	NA	
8b Kit Fox	Monitor predator abundance in core areas. (BIO-3, BIO-4)	Predator abundance	Below "detrimental" levels	quarterly	NA	
8c Kit Fox	Maintain and enhance distribution in core areas. (BIO-3, BIO-4)	Kit fox distribution	>= current distribution	quarterly	NA	
8d Kit Fox	Maintain or enhance suitable habitat structure: shrub cover in core areas. (BIO-3, BIO-8)	Shrub cover	<30%	Anytime	ACTION: Develop species specific protocol for measurements to assess shrub cover in key areas. Develop criteria to determine how to apply summer grazing in these areas with greater than 30% shrub cover.	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
8e Kit Fox	Maintain or enhance suitable habitat structure: veg. ht. in core areas. (BIO-3, BIO-8)	Vegetation height	< Kit fox eyelevel (< 8 inches); patch size?	Anytime	Action: Apply livestock grazing (when GKR density < 20 individuals per hectare and RDM > 1,600 lbs/acre and RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area. Remove livestock when minimums (1,000 lbs/acre RDM or biomass, depending on time of year) are reached, to create large suitable areas in the core area and/or a mosaic pattern in landscape. SECTION 15: Livestock turnout: 1,000 lbs/ac. and 2" green growth, or 1,200 lbs/ac. without green growth. Livestock removal: 700 lbs/ac. at end of growing season (May 31) or if grazing is applied during summer, set another value that results in at least 500 lbs/ac RDM.	
8f Kit Fox	Maintain prey abundance (nocturnal rodents, other small mammals) in core areas. (BIO-3, BIO-4)	Abundance of nocturnal mammals (jackrabbits, cottontails, kangaroo rats, etc.)	Absence, low numbers (need to look at data to determine whether there are thresholds)	quarterly	NA	
8g Kit Fox	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow suitable habitat structure to fluctuate naturally within non-core areas of CMS, PHEP, CPC, and SL subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as SJKF core timing	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels.

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
10a San Joaquin Antelope Squirrel	Maintain suitable habitat structure: herbaceous biomass in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	<1600 lbs/ acre and GKR (> 20 individuals per hectare)	Oct-Nov, before rains	Action: Apply livestock grazing (when GKR density <20 individuals per hectare and RDM >1,600lbs/acre and RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area. Remove livestock when minimums (1,000 lbs/acre RDM or biomass, depending on time of year) are reached, to create large suitable areas in the core area and/or a mosaic pattern in landscape.. SECTION 15: Livestock turnout: 1,000 lbs/ac. and 2" green growth, or 1,200 lbs/ac. without green growth. Livestock removal: 700 lbs/ac. at end of growing season (May 31) or if grazing is applied during summer, set another value that results in at least 500 lbs/ac RDM.	
10b San Joaquin Antelope Squirrel	Maintain/enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Presence of individuals	>= existing distribution. 2 or more individuals on std. transect used to locate core areas.	Spring through Summer	Action: Apply livestock grazing (when GKR density <20 individuals per hectare and RDM >1,600lbs/acre and RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area. Remove livestock when minimums (1,000 lbs/acre RDM or biomass, depending on time of year) are reached, to create large suitable areas in the core area and/or a mosaic pattern in landscape.	
10c San Joaquin Antelope Squirrel	Maintain suitable habitat structure: shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-50%	Anytime	ACTION: Develop species specific protocol for measurements to assess shrub cover in key areas. Develop criteria to determine how to apply summer grazing in these areas with greater than 50% shrub cover over 30% of the SJAS core area and if no conflicts with LETH.	Test effects of vegetation management prescriptions on habitat characteristics and population / demographics

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
10d San Joaquin Antelope Squirrel	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, suitable herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, and CPC subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as SJAS core timing	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels.
30 bats - pallid	TBD	0	0	0	Treatment prescriptions for GKR, BNLL, MOPL provide suitable habitat. Assume specific treatment for BUOW not required since GKR, MOPL, BNLL treatment will overlap BUOW distribution. Ask Dan R. to confirm burrows are not limiting.	
18 Burrowing owl	Maintain current distribution and population size (BIO-4)	nesting pairs with successfully fledged young	>= current levels	late May-July	ACTION: In pastures with known non-lindahli pools: Don't modify existing grazing regime in known pools. Continue past (last 10 -15 years) grazing or non-grazing regime around pools that support non-lindahli species. Grazing on currently known pools was Nov-April, when biomass >1,000 lbs/ac. and native annual species cover was less than 60% of the total annual plant cover. Consider fencing livestock into a smaller area of use that includes the pools rather than using the entire pasture if it will not modify the grazing pattern around the pools.	
11a Fairy Shrimp	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence in all known or potential pools	>= current frequency of occurrence across range	Late January - March	SECTION 15: Don't modify existing grazing regime in known pools. Continue past (last 10 -15 years) grazing or non-grazing regime around pools that support non-lindahli species. Grazing on currently known pools was Nov-April, when biomass >1,000 lbs/ac. and native annual species cover was less than 60% of the total annual plant cover.	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
11b Fairy Shrimp	Replace and maintain cyst bank (BIO-4, BIO-12)	Presence of females with mature cysts	Presence of females with mature cysts	Late January - March	No recommended action to meet this objective. CONSTRAINT: In pastures with known non-lindahli pools: Avoid accelerated drawdown of water - maintain water in pools long enough for one to several cysts production cycles. Provide alternate water for livestock to reduce drawdown by livestock consumption (assess vulnerability of pool - large pools = less vulnerable). Advise sheep herders to avoid vulnerable pools.	
13a Sphinx moth	Maintain current distribution, population size and range (BIO-4)	Presence/absence in all known or potential occurrences	>= current distribution	Late January - mid-February (adult emergence)	No recommended action to meet this objective. CONSTRAINT: Avoid trampling of host plant, moth, larvae, and pupae - Avoid livestock use of known habitat during all life stages. SECTION 15: Avoid trampling of host plant, moth, larvae, and pupae - Avoid livestock use of known habitat during all life stages. (There are currently no known locations in Sec. 15 allotments.)	
13b Sphinx moth	Maintain suitable habitat (BIO-4, BIO-8)	Sparsely vegetated washes with Camissonia campestris	Camissonia is common in favorable years	Late January - late March (plant presence)	CONSTRAINT: In drainages with known KPSM habitat: avoid trampling of washes supporting host plant. Avoid heavy trampling (damage to crust and microsite features required for maintenance of host plant) of known habitat and suspected habitat at all times. SECTION 15: Avoid heavy trampling (damage to crust and microsite features required for maintenance of host plant) of known habitat at all times. (There are currently no known locations in Sec. 15 allotments.)	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
14 Spade-foot toad	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence of tadpoles in all known or other ponds	Water present long enough to complete life cycle	Breeding season: January - April	ACTION: Apply livestock grazing when non-native annuals within 5m of pool's edge approach $\geq 10"$ to minimize effects of evapotranspiration. Remove livestock when height reaches 3"-5". CONSTRAINT: Avoid accelerated drawdown of water – allow enough water in pools long enough for toads to complete life cycle (≥ 60 days). Provide alternate water for livestock to reduce drawdown by livestock consumption (assess vulnerability of pool – large pools = less vulnerable). Advise sheep herders to avoid vulnerable pools.	
16 Vernal pool invertebrates	Maintain current distribution, population size and species diversity (BIO-4, BIO-12)	Presence/absence in all known or potential locations	water present long enough to complete life cycle	Late January - March		
26 LeConte's thrasher	Maintain current nesting populations (BIO-4, BIO-8)	Presence of LETH in suitable habitat	Persistence of current populations; suitable shrub cover for nesting structure; saltbush or ephedra $>3'$ in stands, found in drainages or alluvial fans; open/bare ground for foraging away from shrubs.	Jan-March	CONSTRAINT: Grazing use/intensity that maintains large shrub structure. Maintain between 500 - 1000 lbs/ac biomass for suitable foraging structure.	
5a Mountain Plover	Maintain at least 3 of the core areas of 50-200 acres suitable for plovers by Sept. 1 if no suitable habitat available in non-core areas on the Monument. PRIMARY (BIO-3, BIO-4, BIO-5)	suitable by Sept 1 thru when they leave	low vegetation (< 2 inches)and patch size	30 days before they arrive	Winter use depends on very low structure, whether naturally occurring or management-induced. 3 areas maintained are chosen to include historical use in North, Central and Southern areas of the Monument.	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
5b	Mountain Plover Maintain low shrub cover in core areas. SECONDARY (BIO-5, BIO-8)	Shrub cover	< 5% shrub cover in core area; with minimum patch size of 50-200 acres	September	ACTION: Develop protocol to assess shrub cover in key areas.	Develop criteria to determine how to apply summer grazing in these areas with greater than 5% shrub cover.
5c	Mountain Plover Maintain low biomass in core areas. SECONDARY (BIO-5, BIO-8)	Biomass	<500 lbs/acre	October-March	ACTION: Apply livestock grazing when biomass is >500 lbs/acre Sept. in core areas if no other suitable habitat available. Apply grazing if green growth occurring Oct – Jan. Remove livestock when 500 lbs/acre reached.	
29	condor					
25	sandhill crane					
1a	Pronghorn Maintain suitable vegetation height for fawning. PRIMARY (BIO-16, BIO-8)	Vegetation height	15-25 inches herbaceous veg over 80% of the fawning area (areas of <15% slope)	March-April	ACTION: In Pronghorn Fawning Area: Introduce livestock, when herbaceous vegetation height is > than 25 inches over 80%* of the key area. Remove livestock when herbaceous veg height is between 15 - 25 inches within 80%* of the key area (representing the fawning area) or fawning begins (mid-April). (* for example 80 out of 100 samples) SECTION 15: Should pronghorn establish or expand fawning areas into section 15 lease areas, consider guidelines which encourage that use.	
1b	Pronghorn Maintain suitable shrub cover for fawning. PRIMARY (BIO-16, BIO-8)	Shrub cover, density and distribution	patches of 5-30% cover; 15-25 inches tall; Distribution of patches?	Anytime	ACTION: In Pronghorn fawning Area: Develop species specific protocol for measurements to assess shrub cover in key areas. Develop criteria to determine how to apply summer grazing in these areas with greater than 30% shrub cover. No recommended action to meet this objective.	
1c	Pronghorn Maintain suitable forage. PRIMARY (BIO-16)	Forb abundance and % cover	Maintain or exceed current cover and abundance of palatable forb species	Two sampling dates: March-April; August	CONSTRAINT: In Pronghorn Foraging Areas: Avoid livestock use in spring during years and within pastures with exceptional expressions* of native annual plants. (* exceptional expressions = native annual spp make up 60?-80% of the total annual plant spp relative cover)	Experiment to test whether summer season grazing to reducing RDM to improve forb production
1d	Pronghorn Provide adequate water PRIMARY (BIO-16)	available water	water source every two miles	year round	NA for grazing	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
1e Pronghorn	Maintain or enhance fawn-to-doe ratios SECONDARY (BIO-16)	fawn:doe	Maintain a minimum of 25 fawns/100 does	July	NA for grazing	
1f Pronghorn	Enhance population size SECONDARY (BIO-16)	number of pronghorn	>= 250	January	NA for grazing	
1g Pronghorn	Maintain buck-to-doe ratio SECONDARY (BIO-16)	buck:doe	Maintain a minimum of 25 bucks/100 does + minimum population size of 250	January	NA for grazing	
1h Pronghorn	Promote travel across landscape (BIO-16)	Fences	All fences modified for pronghorn passage/unnecessary fences removed	Anytime		
15a Elk	Maintain and expand foraging habitat. (BIO-17)	Presence of elk	Elk use in 90% of the Avena belt within the CFN and CPN subregions.	November	No recommended action to meet this objective. CONSTRAINT: Do not graze Avena belt within the CFN and CPN subregions. Use GPS elk collar data to determine elk home range. Expect elk home range to be a subset of pronghorn fawning = grasshopper sparrow). SECTION 15: No grazing in current elk cow herd home ranges. Should elk establish or expand home ranges into section 15 lease areas, consider guidelines which encourage that use.	
15b Elk	Maintain suitable vegetation height for calving. PRIMARY (BIO-17, BIO-8)	Vegetation height	>15 inches veg over 80% of the calving area (within appropriate area?)	March-April	No recommended action to meet this objective. CONSTRAINT: In Elk calving areas: Remove livestock when veg height is approaching 15 inches within 80%* of the key area (representing the calving area) or when calving begins (mid-April). (* for example 80 out of 100 samples)	

Management Objectives & Variables					Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate
15c Elk	Provide adequate water PRIMARY (BIO-17)	available water	water source every two miles	year round	NA	
15d Elk	Prevent cow displacement during calving SECONDARY (BIO-17)				No recommended action to meet this objective. CONSTRAINT: Avoid livestock use during calving period (mid-April thru July)	
15e Elk	Maintain or enhance calf-to-cow ratios SECONDARY (BIO-17)	calf:cow	Maintain a minimum of 25 fawns/100 does	July	NA	
15f Elk	Enhance population size SECONDARY (BIO-17)	number of elk	>= 500, including both sub herds.	November	NA	
15g Elk	Maintain bull-to-cow ratio SECONDARY (BIO-17)	bull:cow	Maintain a minimum of 25 bulls/100 cows + minimum population size of 250	November	NA	
24a Grasshopper sparrow	Maintain suitable vegetation structure for nesting PRIMARY. (BIO-4, BIO-8, BIO-18))	Vegetation structure	Vegetation height = 10" to 20+", composed of annual and/or perennial grasses with some scattered shrubs-w/a pref. for bunch grasses; height for perching and cover but open space for movement (patchiness)	Dec-Jan	ACTION: Introduce livestock when patchiness absent and herbaceous vegetation is too dense to allow for movement, or when shrub cover is >20%. Remove when patchiness is achieved or shrub component reduced to <20% over the nesting area. (Assume nesting area between 75 to 250 acres.) CONSTRAINT: Avoid grazing during nesting (March-August).	
24b Other grassland birds	TBD (BIO-4, BIO-8, BIO-18)					
27 tricolor blackbirds	TBD (BIO-4, BIO-8)					
28a landscape scale ecosystem functioning	Maintain the diversity of habitats (BIO-8)	diversity of habitats				

Management Objectives & Variables						Management Guidelines: Grazing	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints to the Actions	Actions to test and evaluate	
28b landscape scale ecosystem functioning	Maintain the diversity of native spp within habitats (BIO-4, BIO-8)	spp diversity within habitats					
29 Long-billed curlew							
30 Wintering Raptors	TBD (BIO-18)						

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Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
<i>Native plant species</i>						
9a	<i>Caulanthus</i>	Maintain distribution and size of existing populations (BIO-2, BIO-14)	Distribution and population size; reproducing populations	January - May		
9b	<i>Caulanthus</i>	Restore populations to areas of known historical range (BIO-14, BIO-8)	Success (establishment and reproduction) of restored populations in historical range	January - May		
19	woolly-threads	Maintain current distribution and population size (BIO -2, BIO-14)	Presence/absence in known or appropriate locations	Feb-Apr		
20a	<i>Lepidium jaredii</i>	maintain or enhance populations (BIO-2, BIO-14)	reproduction	Apr-May		
20b	<i>Lepidium jaredii</i>	maintain or enhance populations (BIO-2, BIO-14)	population size	Mar-May		
32a	<i>Amsinckia vernicosa</i> var. <i>furcata</i>	maintain or enhance populations (BIO-2, BIO-14)	reproduction	Mar-May		
32b	<i>Amsinckia vernicosa</i> var. <i>furcata</i>	maintain or enhance populations (BIO-2, BIO-14)	population size	Mar-May		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
33a	Acanthomintha obovata ssp. cordata (clay species)	reproduction	some seed production in most years, large seed production occasionally	Apr-Jul		
33b	Acanthomintha obovata ssp. cordata	population size	in most years, some presence in known habitat, occasional large displays (like in 2008)	Apr-Jul		
22	Clay species	Presence/absence in known or appropriate locations	>= current distribution and condition across landscape relative to year's precipitation	Mar-Jun		
31	vernal pools	TBD	0	0		
2a1	a. Bunch grasses (Poa secunda, Nasella cernua, Nasella pulchra, Sitanion hystrix, Achnatherum speciosa)	Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	a. Seed production [presence of inflorescences (sexual) or new genets (asexual)]	Varies depending on species (February-May)		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
a. Bunch grasses (Poa secunda, Nasella cernua, Nasella pulchra, Sitanion hystrix, Achnatherum speciosa)	Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	b. Recruitment of new individuals and Retention of existing. Measure through cover and frequency.	Recruitment and survival of new individuals. Maintain or enhance the average frequency of Poa secunda and Nasella spp. seedlings at more than 20 per plot during a five year period. Initiate active restoration when the average frequency of Poa secunda and Nasella spp. seedlings is ≤ 10 seedlings per plot. Frequency plot = large "inter-plot areas"	February for seedlings; late spring (May/June) for new juveniles and adults		Experimentally test dormant season prescribed burning, in select valley and foothill grassland areas where native perennial bunchgrasses are present, for enhancement of native perennial bunchgrass recruitment (i.e., provide germination microsites for new bunchgrass species seedlings by reducing competition (biomass) from exotic annual grasses).
2a2						
a. Bunch grasses (Poa secunda, Nasella cernua, Nasella pulchra, Sitanion hystrix, Achnatherum speciosa)	Maintain stable size structure; PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	Cover, basal diameter	Maintain range of sizes.	February-May		
2a3						

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
a. Bunch grasses (<i>Poa secunda</i> , <i>Nasella cernua</i> , <i>Nasella pulchra</i> , <i>Sitanion hystrix</i> , <i>Achnatherum speciosa</i>)	Maintain or enhance spatial distribution of bunch grass populations PRIMARY (Maintain community parameters) (BIO-2, BIO-14)	Population boundary	Maintain or enhance population boundary within 'range of natural variation' (e.g. allowing for annual expansion and contraction)	February-May		
2a4						
b. Rhizomatous species (<i>Distichlis spicata</i> , <i>Leymus triticoides</i>)	Maintain or enhance population patch size PRIMARY (BIO-2, BIO-14)	Patch size (e.g. %cover over larger scale)	Maintain or enhance patch size (No value for this variable yet)	Anytime (preferably peak growth period)		
2b1						
b. Rhizomatous species (<i>Distichlis spicata</i> , <i>Leymus triticoides</i>)	Maintain or enhance spatial distribution PRIMARY (BIO-2, BIO-14)	Population boundary	Maintain or enhance distribution (No value for this variable yet)	Anytime (peak growth period)		
2b2						

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
c. Native annual flora 2c1	Maintain or enhance native annual species richness and cover PRIMARY (BIO-2, BIO-14)	Native annual species richness and cover	>= current levels. Maintain or enhance the average relative cover of native annual plant species at more than 20% and the average native annual plant species richness at more than 5 during a five year period. Initiate active restoration when the average relative cover of native annual plant species is $\leq$ 20% and/or the average native annual plant species richness is $\leq$ 3.5 during a five year period. Plant cover and richness = Daubenmire plot.	Spring-active: March-May; Summer-active: June-October	occasional burn targeting weedy biomass	Experimentally test dormant season prescribed burning in select valley and foothill grasslands areas for enhancement of native annual plant species cover and richness (i.e., to reduce competition (biomass) from exotic annual grasses, and increase recruitment).
c. Native annual flora 2c2	Maintain native annual seed bank PRIMARY (BIO-2, BIO-14)	Seed production during favorable years	"Adequate" proportion of population producing seeds	Varies depending on species (April-October)		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
c. Native annual flora 2c3	Reduce abundance of exotic annual grasses and forbs SECONDARY (BIO-21)	% cover, richness, abundance, height of exotic species	< current levels	Spring-active: March-May; Summer-active: June-October		Evaluate the use of livestock to reduce exotic summer annuals (tumbleweeds?). Experimentally test dormant season prescribed burning in select valley and foothill grasslands areas to reduce the abundance of exotic annual grasses.
Grassland Community 2g	Maintain matrix of bunchgrasses and native annual plant species PRIMARY (Maintain community parameters) (BIO-8)	Composition and % cover of non-bunchgrass plant species. Frequency of Poa secunda and Nassella species seedlings; relative or absolute cover of native annual plant species; native annual plant species richness.	See 2a2 and 2c1.	March-May		Experimentally test dormant season prescribed burning, in select valley and foothill grassland areas where native perennial bunchgrasses are present, for enhancement of native perennial bunchgrass and native annual forb recruitment (i.e., provide germination microsites for new bunchgrass species seedlings and enhance the cover and richness of native annual forbs by reducing competition (biomass) from exotic annual grasses).
d. Native perennial herbs & bulbs 2d	TBD (BIO-14)	0	0	0		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
e. Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Maintain or enhance current cover and population distribution PRIMARY (BIO-8, BIO-14)	% cover, areal extent		Summer active: June-November; Winter active: December-May; depends on species	Burn prescription should be geared toward target shrub species. Some species may take decade + to reestablish (saltbush) vs. some may come back in 3-5 years (buckwheat).	
2e1						
e. Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Recruitment in favorable years to maintain age structure PRIMARY (BIO-8, BIO-14)	Seedling survival during and following recruitment years	Recruitment and survival of new individuals; range of sizes and ages	Depends on species		Evaluate whether fire can provide germination microsites and seedling establishment opportunities for native shrubs.
2e2						
e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community	Enhance the areal extent of this community. (BIO-8, BIO-14)	acres	> or = to current amount	anytime (remote sensing)		
2e3						
e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community	Enhance native spp cover and richness within this community. (BIO-8, BIO-14)	Cover and richness of native spp.	> current levels	0		
2e4						
e. Native shrub flora: Valley Sink Scrub Community	Enhance native spp cover and richness within this community. (BIO-8, BIO-14)	Cover and richness of native spp.	> current levels	0		
2e6						
f. blue and Alvord oaks	maintain and enhance populations (BIO-14)	reproduction (acorn production)	cyclical production (mast years)	fall		
2f1						

Management Objectives & Variables						Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate	
2f2	f. blue and Alvord oaks maintain and enhance populations (BIO-14, BIO-8)	recruitment of new individuals	presence of seedlings/young trees	any			
2f3	f. blue and Alvord oaks maintain and enhance populations (BIO-14, BIO-8)	understory habitat	presence of intact soils, leaf litter, diverse humus biota	any			
17a	soil crusts maintain and enhance habitat (BIO-14)	geographic extent	increase of crust habitat	any			
17b	soil crusts maintain and enhance habitat (BIO-14)	diversity	presence of a number of species (bryophytes, lichens, algae, cyanobacteria)	best during wet season			
17c	soil crusts maintain and enhance habitat (BIO-14)	serial stage	mix of late and early successional species	best during wet season			
17d	soil crusts maintain and enhance habitat (BIO-14)	physical integrity	not broken during dry season, intact	dry season			
12	Noxious Weeds (Hoary Cress, Tamarisk, Russian Knapweed, Bull thistle, yellow star thistle) Decrease or eliminate distribution and abundance of key invaders (see list) PRIMARY (BIO-21)	presence; % cover, density	presence; <= distribution	Varies depending on species	use if effective for target species and location.		
34	Annual forage on Section 15 allotments Manage annual biomass to protect soils from accelerated erosion and replenish soil nutrients through decomposition. (BIO-1, BIO-8)	RDM	RDM at least 500 lbs/acre at beginning of the next growing season.	October-November			

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
<i>Native animal species</i>						
3a Giant Kangaroo Rat	Maintain or enhance current populations in core areas. PRIMARY (BIO-3, BIO-4)	density (active) (over large scale)	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept	Apply fire in any season to reduce standing biomass to create mosaic pattern; Apply fire when GKR density <20 individuals per hectare and RDM >1,600lbs/acre when RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area.	Efficacy of fire to maintain suitable habitat structure Test effects of vegetation management prescriptions on habitat characteristics and population/demographics
3b Giant Kangaroo Rat	Maintain or enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Distribution of active GKR	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept	Apply fire treatments to create large suitable areas in core areas and/or in a mosaic pattern in landscape. Apply fire when GKR density <20 individuals per hectare and RDM >1,600lbs/acre when RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area.	Test effects of vegetation management prescriptions on habitat characteristics and population/demographics
3c Giant Kangaroo Rat	Maintain suitable habitat structure in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	< 1600 lbs/acre (dry mass) and GKR (>20 individuals/hectare).	fall, Oct-Nov	Apply fire in any season to reduce standing biomass to create mosaic pattern	Consider stubble height or level of utilization as monitoring methods along with or as opposed to RDM

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
3d Giant Kangaroo Rat	Maintain suitable shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-30%	Anytime	Burn in areas with greater than 30% shrub cover. Apply low fire intensity prescriptions The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	
3e Giant Kangaroo Rat	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, distribution, and habitat structure to fluctuate naturally within non-core areas of CMS, TR, PHEP, CPC, and CPN subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as timing in GKR core areas		Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels. Consider impacts at different age classes, effects to food base and pressures from predators.

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
4a Blunt-nosed Leopard Lizard	Maintain suitable herbaceous structure in core areas. PRIMARY (BIO- 3)	Biomass (herbaceous layer only)	<500 optimal; <1000 ok	Spring - Late April - Mid-May (post annual dry-up; after peak production)	Apply fire in any season to reduce standing biomass; Apply fire when biomass is greater than 1,000 lbs/acre in areas within current distribution. Areas are a subset of GKR core areas and treatment areas may vary. Monitoring will determine distribution and size of treatment areas.	Efficacy of fire to maintain suitable habitat structure
4b Blunt-nosed Leopard Lizard	Maintain or enhance population in core areas. PRIMARY (BIO-3)	Presence/absence	One or more individual observed on single visit in favorable conditions; several seen on repeated visits	May and June	Apply fire treatments to create large suitable areas in core areas and/or in a mosaic pattern in landscape	BNLL detection protocols used for monitoring habitat suitability
4c Blunt-nosed Leopard Lizard	Maintain suitable shrub cover in areas with unsuitable number/density of open/available burrows in core areas. PRIMARY (BIO-3, BIO-8)	Shrub cover (burrow availability)	inadequate number/density of open/available burrows AND <5-20% shrub cover	Anytime	Design burns to avoid reducing shrub cover.	
4d Blunt-nosed Leopard Lizard	Maintain suitable shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-30%	Anytime	Burn areas with >30% shrub cover	

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
4e Blunt-nosed Leopard Lizard	Maintain burrows in core areas. SECONDARY (BIO-3, BIO-4)	Burrow density and distribution	Common and available. Suitable burrows present with very few altered by human-induced causes. Small mammal burrowing activity is evident and not reduced by management activities. Few (<10%) disturbed	Adults: May-August; hatchlings: July-August		
4f Blunt-nosed Leopard Lizard	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, and herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, CPC, and CFS.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as timing in BNLL core areas	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels. Consider impacts at diff. age classes, effects to food base and pressures from predators.
8a Kit Fox	Maintain and enhance populations in core areas. (BIO-3, BIO-4)	Kit fox abundance	>= current population size	quarterly		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
8b Kit Fox	Monitor predator abundance in core areas. (BIO-3, BIO-4)	Predator abundance	Below "detrimental" levels	quarterly		
8c Kit Fox	Maintain and enhance distribution in core areas. (BIO-3, BIO-4)	Kit fox distribution	>= current distribution	quarterly		
8d Kit Fox	Maintain or enhance suitable habitat structure: shrub cover in core areas. (BIO-3, BIO-8)	Shrub cover	<30%	Anytime	Burn in areas with greater than 30% shrub cover.	
8e Kit Fox	Maintain or enhance suitable habitat structure: veg. ht. in core areas. (BIO-3, BIO-8)	Vegetation height	< Kit fox eyelevel (< 8 inches); patch size?	Anytime	Action: Apply fire when RDM > 1,600lbs/acre when RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area, to create large suitable areas in core areas and/or a mosaic pattern in landscape.	
8f Kit Fox	Maintain prey abundance (nocturnal rodents, other small mammals) in core areas. (BIO-3, BIO-4)	Abundance of nocturnal mammals (jackrabbits, cottontails, kangaroo rats, etc.)	Absence, low numbers (need to look at data to determine whether there are thresholds)	quarterly		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
8g Kit Fox	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow suitable habitat structure to fluctuate naturally within non-core areas of CMS, PHEP, CPC, and SL subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as timing in SJKF core areas	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels. Consider impacts at diff. age classes, effects to food base and pressures from predators.

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
10a San Joaquin Antelope Squirrel	Maintain suitable habitat structure: herbaceous biomass in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	<1600 lbs/ acre and GKR (> 20 individuals per hectare)	Oct-Nov, before rains	Apply fire treatments to create large suitable areas in core areas and/or in a mosaic pattern in landscape; when GKR density <20 individuals per hectare and RDM >1,600lbs/acre) and RDM is composed of thick, non-native grasses such as Bromus and Hordeum spp. (or other persistent exotics), making up over 70% of plant composition in the sampling area.	Efficacy of fire to maintain suitable habitat structure; Consider stubble height or level of utilization as monitoring methods along with or as opposed to RDM
10b San Joaquin Antelope Squirrel	Maintain/enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Presence of individuals	>= existing distribution. 2 or more individuals on std. transect used to locate core areas.	Spring through Summer	Apply fire treatments to create large suitable areas in core areas and/or in a mosaic pattern in landscape	
10c San Joaquin Antelope Squirrel	Maintain suitable habitat structure: shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-50%	Anytime	Burn in areas with greater than 50% shrub cover. Apply low intensity fire prescriptions to minimize too high Atriplex kill	

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
10d San Joaquin Antelope Squirrel	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, suitable herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, and CPC subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same as SJAS core timing	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels. Consider impacts at diff. age classes, effects to food base and pressures from predators
30 bats - pallid	TBD					
18 Burrowing owl	Maintain current distribution and population size (BIO-4)	nesting pairs with successfully fledged young	>= current levels	late May-July	Avoid indirect effects to nests and young owls - vehicle strikes, entombment.	
11a Fairy Shrimp	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence in all known or potential pools	>= current frequency of occurrence across range	Late January - March		
11b Fairy Shrimp	Replace and maintain cyst bank (BIO-4, BIO-12)	Presence of females with mature cysts	Presence of females with mature cysts	Late January - March		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
13a Sphinx moth	Maintain current distribution, population size and range (BIO-4)	Presence/absence in all known or potential occurrences	>= current distribution	Late January - mid-February (adult emergence)	Avoid burning host plant, moth, and larvae - don't burn known habitat during moth above ground period. Avoid indirect impacts to moth and habitat - vehicle strikes? disturbance to habitat - no surface disturbance in known habitat.	
13b Sphinx moth	Maintain suitable habitat (BIO-4, BIO-8)	Sparsely vegetated washes with Camissonia campestris	Camissonia is common in favorable years	Late January - late March (plant presence)	Avoid indirect impacts to habitat - no surface disturbance in known habitat that could preclude host plant maintenance.	
14 Spade-foot toad	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence of tadpoles in all known or other ponds	Water present long enough to complete life cycle	Breeding season: January - April		Determine if adults stay near pond post breeding so flaming can be used to prevent evapotranspiration of pond water
16 Vernal pool invertebrates	Maintain current distribution, population size and species diversity (BIO-4, BIO-12)	Presence/absence in all known or potential locations	water present long enough to complete life cycle	Late January - March		

Management Objectives & Variables						Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate	
26	LeConte's thrasher	Maintain current nesting populations (BIO-4, BIO-8)	Presence of LETH in suitable habitat	Persistence of current populations; suitable shrub cover for nesting structure; saltbush or ephedra >3' in stands, found in drainages or alluvial fans; open/bare ground for foraging away from shrubs.	Jan-March	Avoid prescribed fire in drainages/alluvial fans that contain large shrubs. Suppress fires to prevent stands of shrubs from burning.	
5a	Mountain Plover	Maintain at least 3 of the core areas of 50-200 acres suitable for plovers by Sept. 1 if no suitable habitat available in non-core areas on the Monument. PRIMARY (BIO-3, BIO-4, BIO-5)	suitable by Sept 1 thru when they leave	low vegetation (< 2 inches) and patch size	30 days before they arrive	Winter use depends on very low structure, whether naturally occurring or management-induced. ACTION: May need to apply fire when veg height is >2" in Sept. in core areas if no other suitable habitat available. Patchiness from GKR may be ok. 3 areas maintained are chosen to include historical use in North, Central and Southern areas of the Monument.	
5b	Mountain Plover	Maintain low shrub cover in core areas. SECONDARY (BIO-5, BIO-8)	Shrub cover	< 5%; with minimum patch size of 50-200 acres	October-November	Burn in areas with greater than 5% shrub cover.	
5c	Mountain Plover	Maintain low biomass in core areas. SECONDARY (BIO-5, BIO-8)	Biomass	<500 lbs/acre	October-March	ACTION: May need to apply fire when biomass is >500 lbs/acre Sept. in core areas if no other suitable habitat available. Patchiness from GKR may be ok.	
29	condor	TBD (BIO-6)					
25	sandhill crane	TBD (BIO-4)					

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
1a Pronghorn	Maintain suitable vegetation height for fawning PRIMARY (BIO-16, BIO-8)	Vegetation height	15-25 inches herbaceous veg over 80% of the fawning area (areas of <15% slope)	March-April		
1b Pronghorn	Maintain suitable shrub cover for fawning PRIMARY (BIO-16, BIO-8)	Shrub cover, density and distribution	patches of 5-30% cover; 15-25 inches tall, Distribution of patches?	Anytime	Burn in areas with greater than 30% shrub cover.	
1c Pronghorn	Maintain suitable forage PRIMARY (BIO-16)	Forb abundance and % cover	Maintain or exceed current cover and abundance of palatable forb species	Two sampling dates: March-April; August	Burn pastures to promote palatable forbs.	
1d Pronghorn	Provide adequate water PRIMARY (BIO-16)	available water	water source every two miles	year round		
1e Pronghorn	Maintain or enhance fawn-to-doe ratios SECONDARY (BIO-16)	fawn:doe	Maintain a minimum of 25 fawns/100 does	July		
1f Pronghorn	Enhance population size SECONDARY (BIO-16)	number of pronghorn	>= 250	January		
1g Pronghorn	Maintain buck-to-doe ratio SECONDARY (BIO-16)	buck:doe	Maintain a minimum of 25 bucks/100 does + minimum population size of 250	January		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
1h Pronghorn	Promote travel across landscape (BIO-16)	Fences	All fences modified for pronghorn passage/unnecessary fences removed	Anytime	Not applicable to fire	
15a Elk	Maintain and expand foraging habitat. (BIO-17)	Presence of elk	Elk use in 90% of the Avena belt within the CFN and CPN subregions.	November		
15b Elk	Maintain suitable vegetation height for calving. PRIMARY (BIO-17, BIO-8)	Vegetation height	>15 inches veg over 80% of the calving area (within appropriate area?)	March-April		
15c Elk	Provide adequate water PRIMARY (BIO-17)	available water	water source every two miles	year round		
15d Elk	Prevent cow displacement during calving SECONDARY (BIO-17)					
15e Elk	Maintain or enhance calf-to-cow ratios SECONDARY (BIO-17)	calf:cow	Maintain a minimum of 25 fawns/100 does	July		
15f Elk	Enhance population size SECONDARY (BIO-17)	number of elk	>= 500, including both sub herds.	November		
15g Elk	Maintain bull-to-cow ratio SECONDARY (BIO-17)	bull:cow	Maintain a minimum of 25 bulls/100 cows + minimum population size of 250	November		

Management Objectives & Variables					Management Guidelines: Prescribed Fire	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
24a Grasshopper sparrow	Maintain suitable vegetation structure for nesting PRIMARY. (BIO-4, BIO-8, BIO-18))	Vegetation structure	Vegetation height = 10" to 20+", composed of annual and/or perennial grasses with some scattered shrubs-w/a pref. for bunch grasses; height for perching and cover but open space for movement (patchiness)	Dec-Jan	Use prescribed fire on portions of habitat (rotation) when patchiness absent and herbaceous veg. too dense for movement, or when shrubs>20%.	
24b Other grassland birds	TBD (BIO-4, BIO-8, BIO-18)					
27 tricolor blackbirds	TBD (BIO-4, BIO-8)					
28a landscape scale ecosystem functioning	Maintain the diversity of habitats (BIO-8)	diversity of habitats				
28b landscape scale ecosystem functioning	Maintain the diversity of native spp within habitats (BIO-4, BIO-8)	spp diversity within habitats				
29 Long-billed curlew						
30 Wintering Raptors	TBD (BIO-4, BIO-18)					

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Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
<i>Native plant species</i>						
9a	Caulanthus	Maintain distribution and size of existing populations (BIO-2, BIO-14)	Distribution and population size; reproducing populations	>= current levels	January - May	
9b	Caulanthus	Restore populations to areas of known historical range (BIO-14, BIO-8)	Success (establishment and reproduction) of restored populations in historical range	Self-sustaining populations in introduced range	January - May	reintroduce in historical range.
19	wooly threads	Maintain current distribution and population size (BIO -2, BIO-14)	Presence/absence in known or appropriate locations	>= current distribution and condition across landscape relative to year's precipitation	Feb-Apr	
20a	Lepidium jaredii	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally (as in 2008)	Apr-May	
20b	Lepidium jaredii	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays (as in 2008)	Mar-May	
32a	Amsinckia vernicosa var. furcata	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally	Mar-May	

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
32b	Amsinckia vernicosa var. furcata	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays	Mar-May	
33a	Acanthominth a obovata ssp. cordata (clay species)	maintain or enhance populations (BIO-2, BIO-14)	reproduction	some seed production in most years, large seed production occasionally	Apr-Jul	
33b	Acanthominth a obovata ssp. cordata	maintain or enhance populations (BIO-2, BIO-14)	population size	in most years, some presence in known habitat, occasional large displays (like in 2008)	Apr-Jul	
22	Clay species	Maintain current distribution and population size	Presence/absence in known or appropriate locations	>= current distribution and condition across landscape relative to year's precipitation	Mar-Jun	
31	vernal pools	TBD	0	0		
2a1	a. Bunch grasses (Poa secunda, Nasella cernua, Nasella pulchra, Sitanion hystrix, Achatherum speciosa)	Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	a. Seed production [presence of inflorescences (sexual) or new genets (asexual)]	Presence of inflorescences in > 50% of population	Varies depending on species (February-May)	

Management Objectives & Variables						Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate	
2a2 a. Bunch grasses (Poa secunda, Nassella cernua, Nassella pulchra, Sitanion hystrix, Achnatherum speciosa)	Maintain or enhance populations PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	b. Recruitment of new individuals and Retention of existing. Measure through cover and frequency.	Recruitment and survival of new individuals. Maintain or enhance the average frequency of Poa secunda and Nassella spp. seedlings at more than 20 per plot during a five year period. Initiate active restoration when the average frequency of Poa secunda and Nassella spp. seedlings is ≤ 10 seedlings per plot. Frequency plot = large "inter-plot areas"	February for seedlings; late spring (May/June) for new juveniles and adults		Experimentally test dormant season prescribed burning plus seeding of native perennial bunchgrasses, in select valley and foothill grassland areas where native perennial bunchgrasses are not currently present but could be established, for enhancement of native perennial bunchgrass recruitment (i.e., 1) provide germination microsites for new bunchgrass species seedlings by reducing competition (biomass) from exotic annual grasses; 2) increase the number of native perennial bunchgrass seedlings in the community).	
2a3 a. Bunch grasses (Poa secunda, Nassella cernua, Nassella pulchra, Sitanion hystrix, Achnatherum speciosa)	Maintain stable size structure; PRIMARY (maintain pop. parameters) (BIO-2, BIO-14)	Cover, basal diameter	Maintain range of sizes.	February-May			

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
a. Bunch grasses (<i>Poa secunda</i> , <i>Nasella cernua</i> , <i>Nasella pulchra</i> , <i>Sitanion hystrix</i> , <i>Achnatherum speciosa</i>) 2a4	Maintain or enhance spatial distribution of bunch grass populations PRIMARY (Maintain community parameters) (BIO-2, BIO-14)	Population boundary	Maintain or enhance population boundary within 'range of natural variation' (e.g. allowing for annual expansion and contraction)	February-May		
b. Rhizomatous species (<i>Distichlis spicata</i> , <i>Leymus triticoides</i>) 2b1	Maintain or enhance population patch size PRIMARY (BIO-2, BIO-14)	Patch size (e.g. %cover over larger scale)	Maintain or enhance patch size (No value for this variable yet)	Anytime (preferably peak growth period)		
b. Rhizomatous species (<i>Distichlis spicata</i> , <i>Leymus triticoides</i>) 2b2	Maintain or enhance spatial distribution PRIMARY (BIO-2, BIO-14)	Population boundary	Maintain or enhance distribution (No value for this variable yet)	Anytime (peak growth period)		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
c. Native annual flora	2c1 Maintain or enhance native annual species richness and cover PRIMARY (BIO-2, BIO-14)	Native annual species richness and cover	>= current levels. Maintain or enhance the average relative cover of native annual plant species at more than 20% and the average native annual plant species richness at more than 5 during a five year period. Initiate active restoration when the average relative cover of native annual plant species is $\leq 20\%$ and/or the average native annual plant species richness is ≤ 3.5 during a five year period. Plant cover and richness = Daubenmire plot.	Spring-active: March-May; Summer-active: June-October	restoration pretreatment using herbicides. enhance native species seed bank - island in landscape, range drill, and broadcast seed.	Experimentally test dormant season prescribed burning plus seeding of native annual forbs, in select valley and foothill grassland areas, for enhancement of native annual forb cover and richness (i.e., 1) reduce competition (biomass) from exotic annual grasses; 2) reduce seed limitation, increase the number and diversity of native annual forbs in the community).
c. Native annual flora	Maintain native annual seed bank PRIMARY (BIO-2, BIO-14)	Seed production during favorable years	"Adequate" proportion of population producing seeds	Varies depending on species (April-October)		
2c2						

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
c. Native annual flora	Reduce abundance of exotic annual grasses and forbs SECONDARY (BIO-21)	% cover, richness, abundance, height of exotic species	< current levels	Spring-active; March-May; Summer-active; June-October		Evaluate the use of other methods to reduce exotic summer annuals (tumbleweeds?).

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
2g Grassland Community	Maintain matrix of bunchgrasses and native annual plant species PRIMARY (Maintain community parameters) (BIO-8)	Composition and % cover of non-bunchgrass plant species. Frequency of Poa secunda and Nassella species seedlings; relative or absolute cover of native annual plant species; native annual plant species richness.	See 2a2 and 2c1.	March-May		Experimentally test dormant season prescribed burning plus seeding of native perennial bunchgrass seedlings and native annual forb seeds, in select valley and foothill grassland areas where native perennial bunchgrasses are present, for enhancement of native perennial bunchgrass and native annual forb recruitment, i.e., 1) provide germination microsites for new bunchgrass species seedlings and enhance native annual forb cover by reducing competition (biomass) from exotic annual grasses; 2) increase the number of native perennial bunchgrass seedlings and the number and richness of native annual forb seedlings in the community. Experimentally test dormant season prescribed burning plus seeding of native perennial bunchgrasses seedlings and native annual forb seeds, in select valley and foothill grassland areas where native perennial bunchgrasses are not currently present , for enhancement of native perennial bunchgrass recruitment (i.e., 1) provide germination microsites for new bunchgrass species seedlings and enhance native annual forb cover by reducing competition (biomass) from exotic annual grasses; 2) increase the number of native perennial bunchgrass seedlings and the number and richness of native annual forb seedlings in the community).

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
d. 2d Native perennial herbs & bulbs	TBD (BIO-14)	0		0		
e. 2e1 Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Maintain or enhance current cover and population distribution PRIMARY (BIO-8, BIO-14)	% cover, areal extent		Summer active: June-November; Winter active: December-May; depends on species	maintain/restore hydrology to promote seed distribution. Protect isolated shrubs (fence) to protect seed source. use grazing to provide germination microsites. Establish islands/strips to act as seed source.	
e. 2e2 Native shrub flora (Atriplex polycarpa, Atriplex spinifera, Ephedra spp)	Recruitment in favorable years to maintain age structure PRIMARY (BIO-8, BIO-14)	Seedling survival during and following recruitment years	Recruitment and survival of new individuals; range of sizes and ages	Depends on species	maintain/restore hydrology to promote seed distribution. Protect isolated shrubs (fence) to protect seed source.	Evaluate whether other tools can provide germination microsites and seedling establishment opportunities for native shrubs.
e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community 2e3	Enhance the areal extent of this community. (BIO-8, BIO-14)	acres	> or = to current amount	anytime (remote sensing)		
e. Native shrub flora: Upper Sonoran Sub-Shrub Scrub Community 2e4	Enhance native spp cover and richness within this community. (BIO-8, BIO-14)	Cover and richness of native spp.	> current levels	0		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
e. Native shrub flora: Valley Sink Scrub Community	Enhance native spp cover and richness within this community. (BIO-8, BIO-14)	Cover and richness of native spp.	> current levels	0		
2f1	maintain and enhance populations (BIO-14)	reproduction (acorn production)	cyclical production (mast years)	fall		
2f2	maintain and enhance populations (BIO-14, BIO-8)	recruitment of new individuals	presence of seedlings/young trees	any		
2f3	maintain and enhance populations (BIO-14, BIO-8)	understory habitat	presence of intact soils, leaf litter, diverse humus biota	any		
17a	maintain and enhance habitat (BIO-14)	geographic extent	increase of crust habitat	any		
17b	maintain and enhance habitat (BIO-14)	diversity	presence of a number of species (bryophytes, lichens, algae, cyanobacteria)	best during wet season		
17c	maintain and enhance habitat (BIO-14)	serial stage	mix of late and early successional species	best during wet season		
17d	maintain and enhance habitat (BIO-14)	physical integrity	not broken during dry season, intact	dry season		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
12	Noxious Weeds (Hoary Cress, Tamarisk, Russian Knapweed, Bull thistle, yellow star thistle)	Decrease or eliminate distribution and abundance of key invaders (see list) PRIMARY (BIO-21)	presence; % cover, density	presence; <= distribution	Varies depending on species	Treat aggressively according to species. Monitor Cal IPC (California invasive plant council) list in event new species appear on Carrizo.
34	Annual forage on Section 15 allotments	Manage annual biomass to protect soils from accelerated erosion and replenish soil nutrients through decomposition. (BIO-1, BIO-8)	RDM	RDM at least 500 lbs/acre at beginning of the next growing season.	October-November	
Native animal species						
3a	Giant Kangaroo Rat	Maintain or enhance current populations in core areas. PRIMARY (BIO-3, BIO-4)	GKR density (active) (over large scale)	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept	

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
3b Giant Kangaroo Rat	Maintain or enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Distribution of active GKR	Maintain at least 20 individuals per hectare in core areas or in mosaic pattern in landscape (20 individuals indicate treatment action needed in core area)	August-Sept	relocate to appropriate sites.	
3c Giant Kangaroo Rat	Maintain suitable habitat structure in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	RDM < 1600 lbs/acre (dry mass) and GKR (>20 individuals/hectare).	fall, Oct-Nov		
3d Giant Kangaroo Rat	Maintain suitable shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-30%	Anytime		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
3e Giant Kangaroo Rat	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, distribution, and habitat structure to fluctuate naturally within non-core areas of CMS, TR, PHEP, CPC, and CPN subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same timing as GKR core areas	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels
4a Blunt-nosed Leopard Lizard	Maintain suitable herbaceous structure in core areas. PRIMARY (BIO-3)	Biomass (herbaceous layer only)	<500 optimal; <1000 ok	Spring - Late April - Mid-May (post annual dry-up; after peak production)		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
4b Blunt-nosed Leopard Lizard	Maintain or enhance population in core areas. PRIMARY (BIO-3)	Presence/absence	One or more individual observed on single visit in favorable conditions; several seen on repeated visits	May and June	Avoid activities that may result in direct take and reduce habitat availability in core/occupied areas. Conduct in dry conditions to avoid burrow collapse	
4c Blunt-nosed Leopard Lizard	Maintain suitable shrub cover in areas with unsuitable number/density of open/ available burrows in core areas. PRIMARY (BIO-3, BIO-8)	Shrub cover (burrow availability)	inadequate number/density of open/available burrows AND <5-20% shrub cover	Anytime	Restoration would be used to increase shrub cover to optimal levels (of 5-20%).	
4d Blunt-nosed Leopard Lizard	Maintain suitable shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-30%	Anytime	Restoration would not be used to achieve >30% shrub cover.	
4e Blunt-nosed Leopard Lizard	Maintain burrows in core areas. SECONDARY (BIO-3, BIO-4)	Burrow density and distribution	Common and available. Suitable burrows present with very few altered by human-induced causes. Small mammal burrowing activity is evident and not reduced by management activities. Few (<10%) disturbed	Adults: May-August; hatchlings: July-August	Avoid management activities that reduce burrow availability	

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
4f Blunt-nosed Leopard Lizard	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, and herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, CPC, and CFS.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same timing as BNLL core areas	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels
8a Kit Fox	Maintain and enhance populations in core areas. (BIO-3, BIO-4)	Kit fox abundance	>= current population size	quarterly	Post signs to prevent vehicle strikes for dens near Soda Lake Rd.	
8b Kit Fox	Monitor predator abundance in core areas. (BIO-3, BIO-4)	Predator abundance	Below "detrimental" levels	quarterly		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
8c Kit Fox	Maintain and enhance distribution in core areas. (BIO-3, BIO-4)	Kit fox distribution	>= current distribution	quarterly		
8d Kit Fox	Maintain or enhance suitable habitat structure: shrub cover in core areas. (BIO-3, BIO-8)	Shrub cover	<30%	Anytime		
8e Kit Fox	Maintain or enhance suitable habitat structure: veg. ht. in core areas. (BIO-3, BIO-8)	Vegetation height	< Kit fox eyelevel (< 8 inches); patch size?	Anytime		
8f Kit Fox	Maintain prey abundance (nocturnal rodents, other small mammals) in core areas. (BIO-3, BIO-4)	Abundance of nocturnal mammals (jackrabbits, cottontails, kangaroo rats, etc.)	Absence, low numbers (need to look at data to determine whether there are thresholds)	quarterly		

Management Objectives & Variables						Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate	
8g Kit Fox	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow suitable habitat structure to fluctuate naturally within non-core areas of CMS, PHEP, CPC, and SL subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same timing as SJKF core areas	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels	
10a San Joaquin Antelope Squirrel	Maintain suitable habitat structure: herbaceous biomass in core areas. PRIMARY (BIO-3, BIO-4)	fall RDM	<1600 lbs/ acre and GKR (>20 individuals per hectare)	Oct-Nov, before rains			
10b San Joaquin Antelope Squirrel	Maintain/ enhance distribution in core areas. PRIMARY (BIO-3, BIO-4)	Presence of individuals	>= existing distribution. 2 or more individuals on std. transect used to locate core areas.	Spring through Summer	Apply seeding rates of shrubs that average <30% cover	figure out why SJAS are not present/declining.	

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
10c San Joaquin Antelope Squirrel	Maintain suitable habitat structure: shrub cover in core areas. SECONDARY (BIO-3, BIO-8)	Shrub cover	0-50%	Anytime	Apply seeding rates of shrubs that average <30% cover	
10d San Joaquin Antelope Squirrel	Prevent species disappearance from the Monument. (Alt 2, Non-core areas) (BIO-4, BIO-15)	Allow populations, suitable herbaceous structure to fluctuate naturally within non-core areas of CMS, PHEP, and CPC subregions.	Take action to prevent disappearance from the Monument when variables in core areas continue to decline despite actions already taken in core areas.	Same timing as SJAS core areas	The decision to apply management outside the core area, and what type of management to use, would follow the logic outlined in the Decision Tree table for management of SJV target species in non-core areas. Specific management actions would be based on evaluations of core area populations, the effectiveness of current management, and whether target animal populations are responding to current management.	Test management actions to achieve core area effects in non-core areas when species thresholds at desired levels
30 bats - pallid	TBD					

Management Objectives & Variables						Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate	
18	Burrowing owl	Maintain current distribution and population size (BIO-4)	nesting pairs with successfully fledged young	>= current levels	late May-July	Minimize vehicle strikes - speed limits? Education? warning signs? Avoid indirect effects to nests and young owls - vehicle strikes, entombment.	
11a	Fairy Shrimp	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence in all known or potential pools	>= current frequency of occurrence across range	Late January - March		
11b	Fairy Shrimp	Replace and maintain cyst bank (BIO-4, BIO-12)	Presence of females with mature cysts	Presence of females with mature cysts	Late January - March		
13a	Sphinx moth	Maintain current distribution, population size and range (BIO-4)	Presence/absence in all known or potential occurrences	>= current distribution	Late January - mid-February (adult emergence)	Avoid indirect impacts to moth and habitat - vehicle strikes? disturbance to habitat - no surface disturbance in known habitat	Research currently ongoing to determine impacts from various types of disturbance.
13b	Sphinx moth	Maintain suitable habitat (BIO-4, BIO-8)	Sparsely vegetated washes with Camissonia campestris	Camissonia is common in favorable years	Late January - late March (plant presence)	Avoid indirect impacts to habitat - no surface disturbance in known habitat that could preclude host plant maintenance.	

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
14 Spadefoot toad	Maintain current distribution, population size and range (BIO-4, BIO-12)	Presence/absence of tadpoles in all known or other ponds	Water present long enough to complete life cycle	Breeding season: January - April	Post signs to prevent trespass sheep grazing; use hand tools to remove vegetation around ponds when needed to prevent evapotranspiration.	
16 Vernal pool invertebrates	Maintain current distribution, population size and species diversity (BIO-4, BIO-12)	Presence/absence in all known or potential locations	water present long enough to complete life cycle	Late January - March		
26 LeConte's thrasher	Maintain current nesting populations (BIO-4, BIO-8)	Presence of LETH in suitable habitat	Persistence of current populations; suitable shrub cover for nesting structure; saltbush or ephedra >3' in stands, found in drainages or alluvial fans; open/bare ground for foraging away from shrubs.	Jan-March	Avoid disturbance in drainages and alluvial fans. Restore shrubs when lost to fire or management actions.	
5a Mountain Plover	Maintain at least 3 of the core areas of 50-200 acres suitable for plovers by Sept. 1 if no suitable habitat available in non-core areas on the Monument. PRIMARY (BIO-3, BIO-4, BIO-5)	suitable by Sept 1 thru when they leave	low vegetation (< 2 inches)and patch size	30 days before they arrive		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
5b Mountain Plover	Maintain low shrub cover in core areas. SECONDARY (BIO-5, BIO-8)	Shrub cover	< 5%; with minimum patch size of 50-200 acres; areas as little as 10 acres may be used but larger preferred	October-November		
5c Mountain Plover	Maintain low biomass in core areas. SECONDARY (BIO-5, BIO-8)	Biomass	<500 lbs/acre	October-March		
29 condor	TBD (BIO-6)				lead free special rules?	
25 sandhill crane	TBD (BIO-4)					
1a Pronghorn	Maintain suitable vegetation height for fawning PRIMARY (BIO-16, BIO-8)	Vegetation height	15-25 inches herbaceous veg over 80% of the fawning area (areas of <15% slope)	March-April		
1b Pronghorn	Maintain suitable shrub cover for fawning. PRIMARY (BIO-16, BIO-8)	Shrub cover, density and distribution	patches of 5-30% cover; 15-25 inches tall, Distribution of patches?	Anytime		
1c Pronghorn	Maintain suitable forage. PRIMARY (BIO-16)	Forb abundance and % cover	Maintain or exceed current cover and abundance of palatable forb species	Two sampling dates: March-April; August		
1d Pronghorn	Provide adequate water PRIMARY (BIO-16)	available water	water source every two miles	year round		
1e Pronghorn	Maintain or enhance fawn-to-doe ratios SECONDARY (BIO-16)	fawn:doe	Maintain a minimum of 25 fawns/100 does	July		

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
1f Pronghorn	Enhance population size SECONDARY (BIO-16)	number of pronghorn	>= 250	January	Don't hunt. Relocate more	
1g Pronghorn	Maintain buck-to-doe ratio SECONDARY (BIO-16)	buck:doe	Maintain a minimum of 25 bucks/100 does + minimum population size of 250	January		
1h Pronghorn	Promote travel across landscape (BIO-16)	Fences	All fences modified for pronghorn passage/unnecessary fences removed	Anytime	Continue to modify fences to BLM standards or w/higher bottom wire; remove unnecessary fences	
15a Elk	Maintain and expand foraging habitat. (BIO-17)	Presence of elk	Elk use in 90% of the Avena belt within the CFN and CPN subregions.	November		
15b Elk	Maintain suitable vegetation height for calving. PRIMARY (BIO-17, BIO-8)	Vegetation height	>15 inches veg over 80% of the calving area (within appropriate area?)	March-April		
15c Elk	Provide adequate water PRIMARY (BIO-17)	available water	water source every two miles	year round		
15d Elk	Prevent cow displacement during calving SECONDARY (BIO-17)				Restrict access during calving period.	

Management Objectives & Variables					Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate
15e Elk	Maintain or enhance calf-to-cow ratios SECONDARY (BIO-17)	calf:cow	Maintain a minimum of 25 fawns/100 does	July		
15f Elk	Enhance population size SECONDARY (BIO-17)	number of elk	>= 500, including both sub herds.	November	Appropriate hunt harvest. will accept translocations within habitat capacity	
15g Elk	Maintain bull-to-cow ratio SECONDARY (BIO-17)	bull:cow	Maintain a minimum of 25 bulls/100 cows + minimum population size of 250	November	Reduce hunting pressure. Avoid conflicts with hunting seasons.	
24a Grasshopper sparrow	Maintain suitable vegetation structure for nesting PRIMARY. (BIO-4, BIO-8, BIO-18))	Vegetation structure	Vegetation height = 10" to 20", composed of annual and/or perennial grasses with some scattered shrubs-w/a pref. for bunch grasses; height for perching and cover but open space for movement (patchiness)	Dec-Jan	Use restoration to increase native bunch grasses in habitat or to create habitat.	
24b Other grassland birds	TBD (BIO-4, BIO-8, BIO-18)					
27 tricolor blackbirds	TBD (BIO-4, BIO-8)					
28a landscape scale ecosystem functioning	Maintain the diversity of habitats (BIO-8)	diversity of habitats				

Management Objectives & Variables						Management Guidelines: Other Restoration Tools	
Conservation Target	Management Target (Plan Objective)	Variable	Desired Value of the Variable	Time of year the variable should be measured	Actions and Constraints on the Actions	Actions to test and evaluate	
28b landscape scale ecosystem functioning	Maintain the diversity of native spp within habitats (BIO-4, BIO-8)	spp diversity within habitats					
29 Long-billed curlew	TBD						
30 Winter Raptors	TBD (BIO-4, BIO-18)						

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Attachment 6

Management of Lands With Wilderness Characteristics

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Attachment 6

Management of Lands With Wilderness Characteristics

Management Direction

Management of Lands With Wilderness Characteristics is part of BLM's multiple-use mandate, and is recognized within the spectrum of resource values and uses. Public lands with wilderness characteristics generally:

- Have been affected primarily by the forces of nature, with the imprint of humans substantially unnoticeable.
- Have outstanding opportunities for solitude or a primitive and unconfined type of recreation,
- Have at least five thousand acres of land or of sufficient size as to make practicable its preservation and use in unimpaired condition, and
- Potentially containing ecological, geological, or other features of scientific, educational, scenic, or historical value.

With exceptions, public lands having wilderness characteristics should be managed to protect these values. In addition, they should augment multiple-use management of the CPNM and adjacent lands particularly for the protection of watersheds and water yield, wildlife habitat, natural plant communities, and similar natural values.

With exceptions, the following activities generally do not occur within lands having wilderness characteristics:

- Commercial enterprises
- Permanent roads
- Temporary roads
- Use of motor vehicles
- Use of motorized / Mechanized equipment
- Use of motorboats
- Landing of aircraft
- Mechanical transport
- Structures Installations

However, there are exceptions to these prohibitions and they are generally grouped into three categories:

- **Valid Existing Rights.** Prior-existing rights may continue. New discretionary uses that create valid existing rights are not allowed.
- **Administrative Activities.** New commercial activities or new permanent roads will not be authorized. BLM may authorize any of the other prohibitions if it is necessary to meet the minimum requirements to administer and protect the lands with wilderness character and to protect the health and safety of persons within the area.
- **Other General Allowances.** Subject to limitations determined by the State Director, general allowances could include actions necessary to control fire, insects, and diseases, recurring Federal mineral surveys, established livestock grazing, commercial services to the extent necessary for activities which are proper for realizing the recreational or other wilderness character purposes and compatible with the defined values, and adequate access to inholdings.

Specific Guidance

1. **Emergencies.** The use of motor vehicles and mechanical transport, and the construction of temporary roads, structures, and installations is allowed for emergency purposes and when consistent with the management principles of the CPNM.
2. **Land Disposals, Rights-of-Ways, Use Authorizations.** These lands will be retained in public ownership. They will not be disposed through any means, including public sales, exchanges, patents under the Recreation and Public Purposes Act, color of title Class II, desert land entries (except where a vested right was established prior to October 21, 1976) or State selections. Disposals may be permitted under normal BLM procedures for mining patents, color of title Class I, and desert land entries in which a vested right was established. Prior existing rights, such as leases under the Recreation and Public Purposes Act, leases/permits under 43 CFR 2920, and rights-of-ways (ROWs) may continue. These also could be renewed if they are still being used for their authorized purpose. New authorizations, leases, permit, and ROWs will not be authorized since they are considered new valid rights.
3. **Routes of Travel.** The construction of new permanent roads will not be allowed. New temporary roads could be allowed if the BLM determines it is consistent with the objectives of this plan, if it is necessary to protect the health and safety of persons within the area, or if necessary to control fire, insects, non-native invasive plants and diseases. Motorized or mechanized use of the existing routes is allowed subject to prescriptions outlined in the route designation process or stipulations identified in an authorization. Unless stipulated in the plan, any motorized or mechanized uses off those routes of travel will not be allowed.
4. **Mining.** There are no authorized mining operations in the Monument. All lands are withdrawn from mineral entry. Therefore there will be no mining operations.
5. **Mineral Leasing.** Existing mineral leases represent a valid existing right. These rights are dependent upon the specific terms and conditions of each lease. Existing leases will be regulated to prevent unnecessary or undue degradation. No new oil and gas leases will be issued.
6. **Grazing.** Existing livestock grazing, and the activities and facilities that support a grazing program are permitted to continue at the same level and degree, subject to any additional prescriptions. The construction of new grazing facilities would be permitted if they are primarily for the purpose of protecting wilderness characteristics and more effective management of resources, rather than to accommodate increased numbers of livestock.
7. **Fire Management.** Fire management will be consistent with Bureau policy. Fires must be controlled to prevent the loss of human life or property. They must also be controlled to prevent the spread of fires to areas outside of Lands With Wilderness Character where life, resources, or property may be threatened. Human caused wildfires will be prevented and/or controlled. Prescribed fires are allowed in conformity with a fire management plan so long as it consistent in improving or maintaining the areas wilderness character. Minimum impact suppression tactics (MIST) will be applied to the extent possible.
8. **Forest/Vegetation Health.** Insects, disease, and non-native invasive species may be controlled if determined that it is necessary to meet the minimum requirements to administer and protect these lands. Insect and disease outbreaks must not be artificially controlled, except to protect valuable resources outside the Land With Wilderness Character, or in special instances when the loss to resources within these lands is undesirable. Vegetative manipulation to control non-native invasive species is allowed

when there is no effective alternative and when the control is necessary to maintain the natural ecological balances within the area. Control may include manual, chemical, and biological treatment provided it will not cause adverse impacts to the wilderness character.

9. Recreation. Primitive and unconfined recreational uses such as hiking, camping, rock climbing, hunting etc. are allowed on these lands. Recreational uses will not be allowed if they require:

- Motor vehicles or mechanical transport (e.g, mountain bikes) off routes designated as open or limited as designated through the route designation process.
- Permanent structures or installations (other than tents, tarpaulins, temporary corrals, and similar devices for overnight camping).

New commercial services will not be allowed unless they are necessary for realizing the primitive and unconfined recreational values. An example of an allowed commercial service would be an outfitting and guide service. Existing commercial recreational authorizations may be allowed to continue under its terms and conditions to their expiration date.

10. Cultural and Paleontological Resources. Cultural and paleontological resources are recognized as unique and valuable. They are also important supplemental values to an area's wilderness character. Resource inventories, studies, and research involving surface examination may be permitted if it benefits wilderness values. This same standard applies for the salvage of archeological and paleontological sites; rehabilitation, stabilization, reconstruction, and restoration work on historic structures; excavations; and extensive surface collection may also be permitted for a specific project. Permanent physical protection, such as fences, will be limited to those measures needed to protect resources eligible for the National Register of Historic Places and will be constructed so as to minimize impacts on apparent naturalness.

11. Wildlife Management. Wildlife resources are a special feature that may contribute to an area's wilderness character. Whenever possible, these resources should be managed to maintain that character. Nothing will be construed as affecting the jurisdiction or responsibilities of the State agencies with respect to wildlife management on these lands. Hunting is a legitimate activity on these lands. The State establishes regulations and enforcement for these uses. State wildlife agencies and the BLM are responsible for fostering a mutual understanding and cooperation in the management of wildlife. Management activities on these lands will emphasize the protection of natural processes. Management activities will be guided by the principle of doing the minimum necessary to manage the area to preserve its natural character. Management of public lands having wilderness character will follow the guidelines provided in the Memorandum of Understanding between the BLM and the International Association of Fish and Wildlife Agencies. It will also follow any additional site-specific wildlife decisions addressed through the land use planning process.

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Attachment 7 Supplementary Rules for Public Use

Supplementary rules for public use and recreation are established by the BLM and approved by the Secretary of the Interior. These rules are designed to protect the resources of the monument and to provide for the enjoyment of the public. The rules are intended to be consistent with the purposes of the monument and the policies of the BLM. The rules are intended to be consistent with the purposes of the monument and the policies of the BLM.

Existing Rules

Attachment 7

Supplementary Rules for Public Use

The BLM is responsible for the management of the monument and for the protection of its resources. The BLM is responsible for the management of the monument and for the protection of its resources. The BLM is responsible for the management of the monument and for the protection of its resources.

Revised Rules for Public Use

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Attachment 7

Supplementary Rules for Public Use

Supplementary rules complement local, state, and federal laws and regulations, to increase public safety and protect sensitive resources. These rules are not intended to unduly interfere with the public use and enjoyment of the CPNM, but to enhance that use by providing protection for the area so that its natural qualities will be maintained or enhanced in the future. Preliminary text to be included in the new rules, as well as text from existing rules, is provided below for general information purposes. Any new rules will be formalized through a Federal Register notice and rulemaking process that will be initiated upon completion of the RMP.

Existing Rules

Establish shooting closures to protect visitors within the following high-use areas:

- Within ¼ mile of any Administrative site, including but not limited to the Selby and KCL Campgrounds, Washburn, Saucito, Goodwin and MU Ranch headquarters, the Soda Lake Overlook complex and the Wallace Creek interpretive area.
- Beginning at the intersection of Soda Lake Road and Selby Road, southerly along Selby Road to its intersection with a fence line behind Painted Rock, then westerly along that fence line to its intersection with the section fence line, then northerly along the section fence line to its intersection with Soda Lake Road, then southerly back to the beginning.

Recreational target shooting is prohibited in the CPNM.

The Washburn Administrative Site and the MU, Goodwin, Saucito, and Painted Rock ranches headquarters may be closed to public access at the discretion of the BLM or the managing partners.

Sulphur Springs are closed to public access except under permit from BLM. Painted Rock is closed to public access from March 1 through July 15 except for tours conducted by the managing partners. It is open to public access at other times, subject to special closure for resource protection at the discretion of BLM.

Operation of any vessel, including aircraft, hovercraft, and boats of any kind, or any vehicle equipped with an engine or motor for propulsion is prohibited on or within 100 feet of Soda Lake or any adjacent stream, channel, dry lake, or body of water.

Vehicles parked adjacent to any designated route of travel must be parked as close to the route as possible without preventing passage of other vehicles.

All roads, routes, paths, trails, fire lines, burned areas, and ways are closed to motor vehicles unless designated open for such use. Open roads may be closed temporarily at the discretion of the managing partners for public safety or resource protection. Unless otherwise posted, the speed limit within the CPNM shall be 25 mph except on county roads. Vehicles are limited to designated routes only. No cross-country travel is permitted unless authorized.

No person, other than employees on official business or representatives of the managing partners, may operate a motor vehicle on any route designated for administrative use only, except by prior approval of the managing partners.

Bicycles may not be operated on closed roads or trails, or off existing open roadways or trails. Roads designated for administrative use only are open to bicycle, pedestrian, and casual horse use unless otherwise posted.

All litter, waste, or refuse at campsites must be kept within a container or receptacle while camping and removed when leaving the CPNM.

All camping or overnight parking must occur within designated camping areas and campgrounds.

Property left unattended for more than four days, without prior approval of the managing partners, will be treated as abandoned and may be removed and stored by law enforcement personnel at the owner's expense.

Overnight camping is limited to 14 days in any 30-day period, for no more than 28 days within a 1-year period, except as specified in writing by the authorized officer. Camping is allowed only within designated campgrounds and camping areas. Note: "Camping areas" in this existing rule are zones within the CPNM open to camping. The boundaries of these zones are described in visitor information.

When livestock grazing is occurring under permit from BLM, the primary purpose of all appurtenant facilities such as corrals and loading chutes will be for the permittee's livestock.

Camping or overnight parking is prohibited within 200 yards of a natural or artificial water source.

All pets and pack animals must be controlled by the owner at all times. Pack animals shall be within corrals or adequately restrained. Pets must be prevented from chasing, harassing, or taking wildlife.

Organized groups with 20 or more persons or 5 or more vehicles must secure a permit for any day or overnight use.

Any research or study activities will require a permit or authorization from BLM.

The use of metal detectors is prohibited, except for approved administrative purposes.

Supplementary Rules for Public Use Proposed Under this RMP

Any paintball, airsoft, or like weapon is prohibited from use on the CPNM.

In coordination with CDFG, eliminate varmint (non-game species) hunting on the Monument.

Still and video photography of the pictograph images at Painted Rock and other rock art sites in the Monument are prohibited for commercial purposes.

Permit is required to access Painted Rock. The details on how to obtain a permit and the rules to be followed are in Appendix X of this document.

A 1,204-acre area from Painted Rock to Selby Rocks is closed to horses, livestock, dogs, and the discharge of firearms. The closed area does not include Selby Road or Caliente Mountain Road (see Map 2-2).

Only street-legal vehicles are permitted on routes within the Carrizo Plain National Monument. Non-street-legal vehicles are prohibited with the following exceptions:

- When used for authorized, permitted, and administrative purpose, including those used in emergency situations.
- When used on a portion of the Temblor Ridge Road from T. 31 S., R. 21 E., Sec. 23 (Crocker Grade Road) to T. 11 N., R. 24 W., Sec. 7 allowing connectivity to the eastern slopes of the Temblors. Staging for OHV activities and trailing of OHV vehicles is prohibited along Temblor Ridge Road.

Competitive / recreational events shall not include the release of nonnative or captive-held native species.

Pets shall remain leashed at all developed sites including visitor centers, interpretive overlooks, and camping areas.

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Map 3-6:	National Register of Historic Places.
Map 3-7:	Grazing Allotments
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MAPS

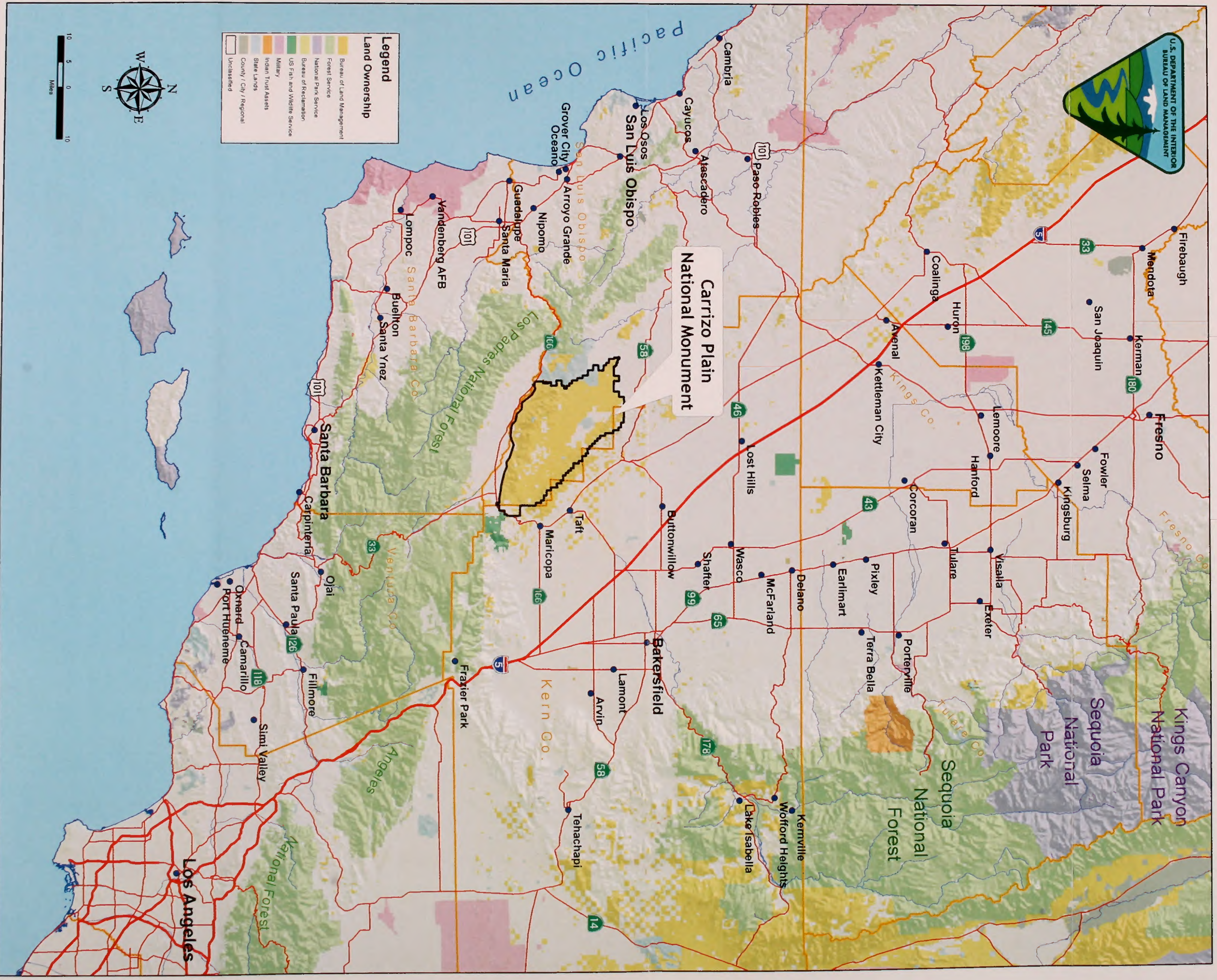
Map 2-1:	Wildlife Map
Map 2-2:	Physical Features and Planning Area Boundary
Map 2-3:	Private Land Ownership
Map 2-4:	Resource Management Study and Study Locations
Map 2-5:	Land Managed for Wilderness Characteristics
Map 2-6:	Livestock Grazing Allocation

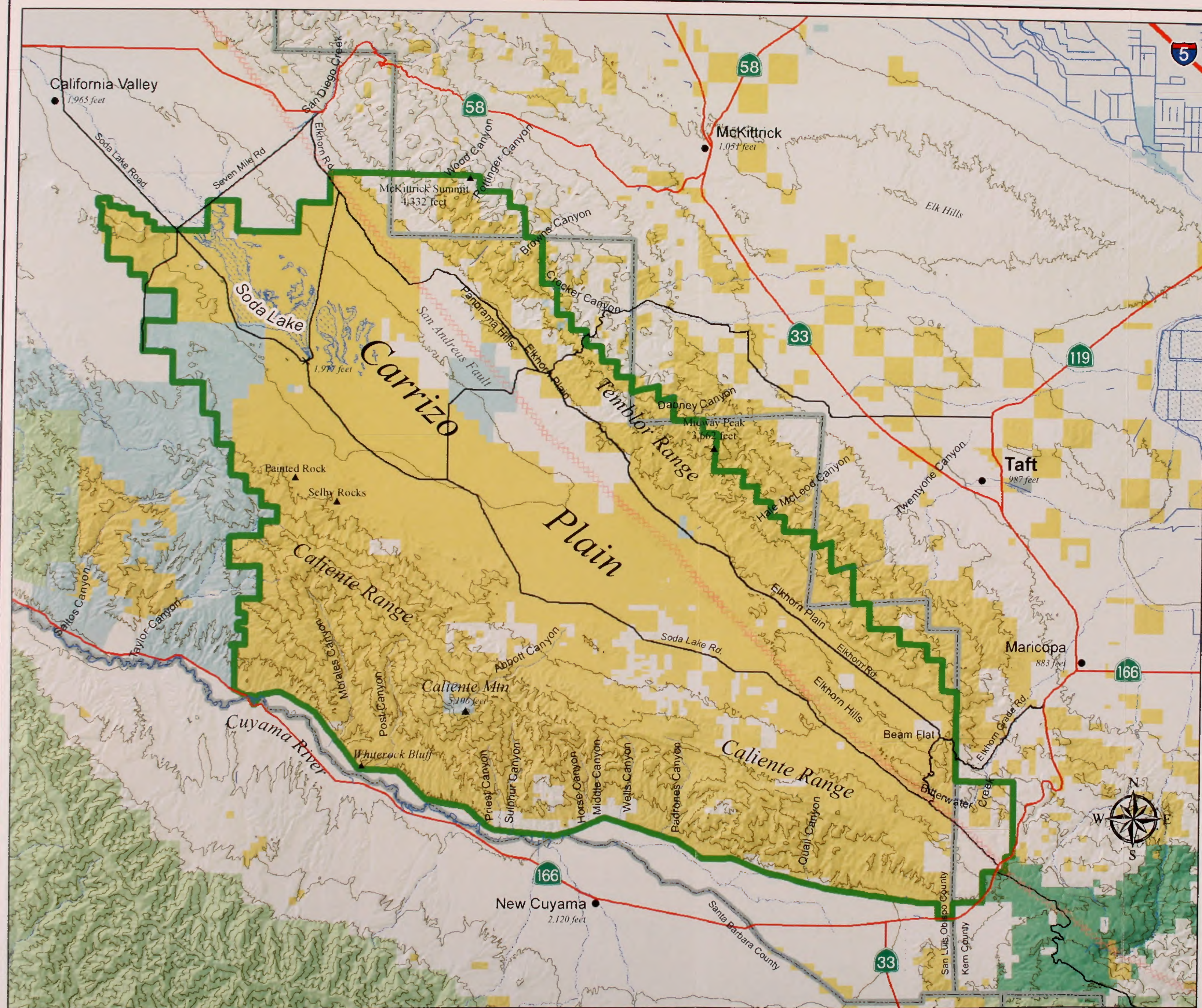
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Map 3-1:	Cultural Resource Distribution
Map 3-2:	Special Status Lands
Map 3-3:	Recreation and Public Use
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Map 3-5:	The Protection Process
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Map 2-1. Vicinity Map

**Bureau of Land Management
Bakersfield Field Office
Carizo Plain National Monument**





**Map 2-2
Physical Features
and
Planning Area Boundary**

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

Legend

- Carrizo Plain National Monument
- County Maintained Road
- San Andreas Fault

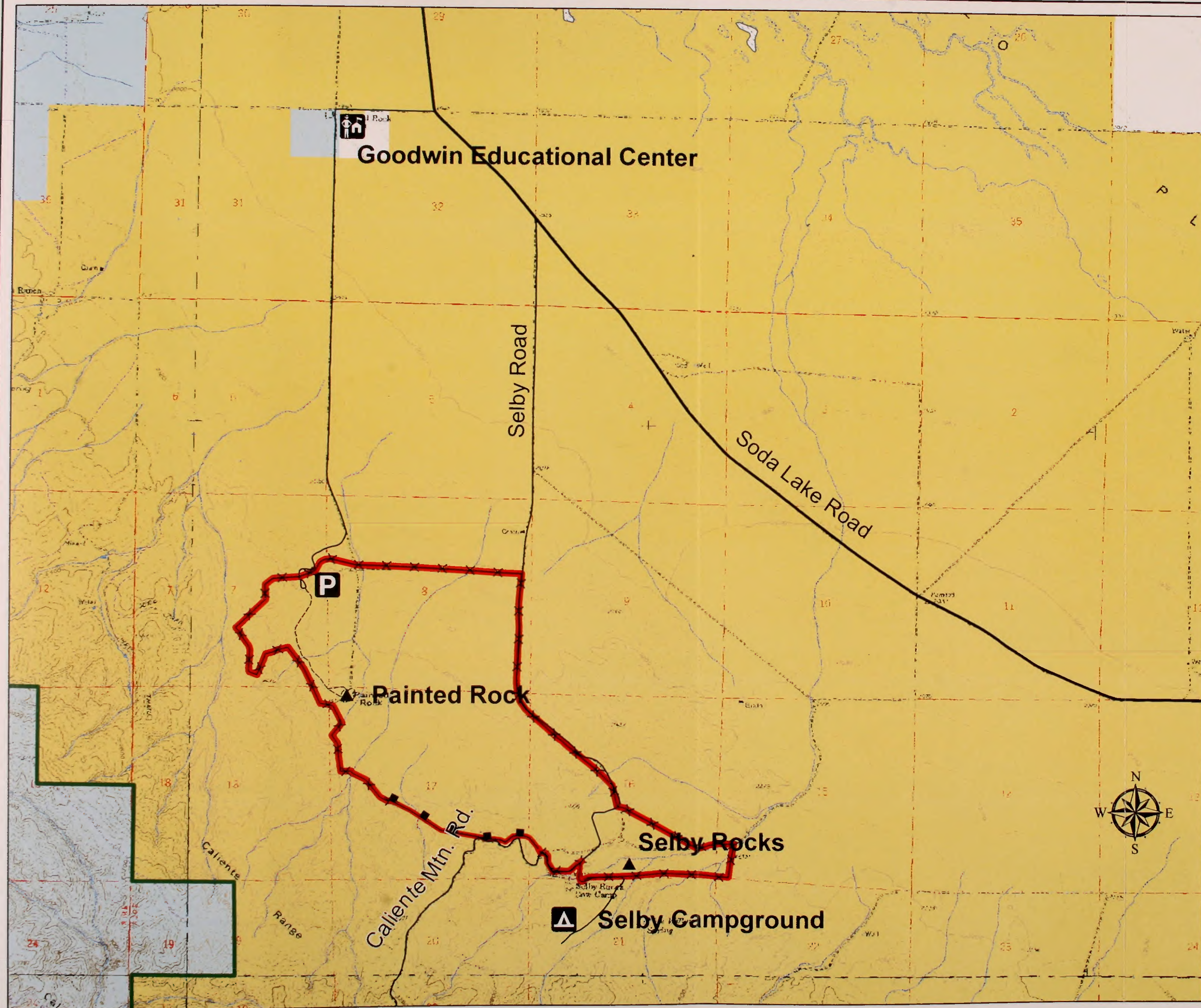
Land Ownership

- Bureau of Land Management
- US Forest Service
- US Fish and Wildlife Service
- State
- County/State/Regional
- Private/Other

500 Foot Contour Interval



0 2.5 5
Miles



Map 2-3
Painted Rock Exclusion Zone
Carrizo Plain National Monument
ROD/Approved Plan
Bureau of Land Management
Bakersfield Field Office

Legend

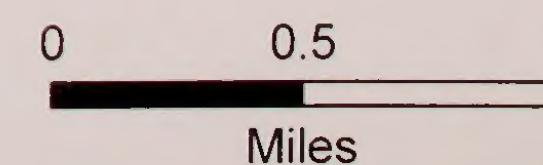
- Carrizo Plain National Monument
- County Maintained Road

Exclusion Area Perimeter

- Presently Fenced
- Road
- To be signed

Land Ownership

- Bureau of Land Management
- US Forest Service
- US Fish and Wildlife Service
- State
- County/State/Regional
- Private/Other



Map 2-4

**Recreation Management Zones and
Route Designations**

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

Legend

- CPNM Boundary
- Caliente Mtn. WSA

Route Designations

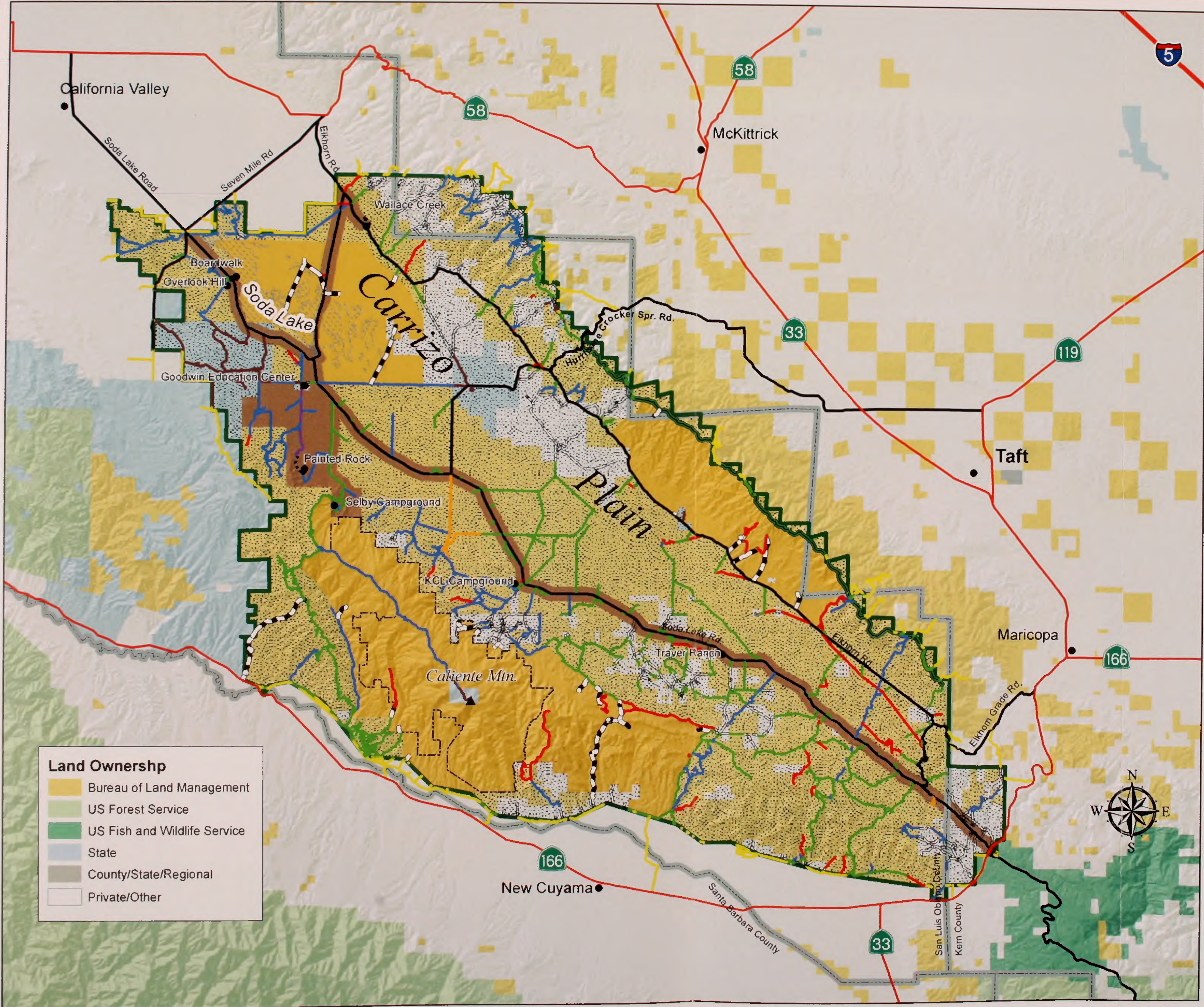
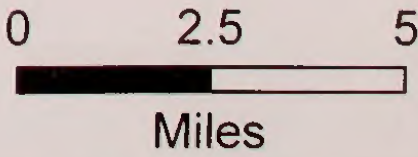
- State Highways
- County Roads
- Motorized
- Motorized (Street-legal only)
- Motorized. Closed Seasonally:
March 1 - July 15.
- Non Motorized
- Authorized Use Only.
- Closed
- Non-mechanized.
- Pedestrian use.
- Routes on State Lands
- Routes on Private Lands
- Routes outside CPNM

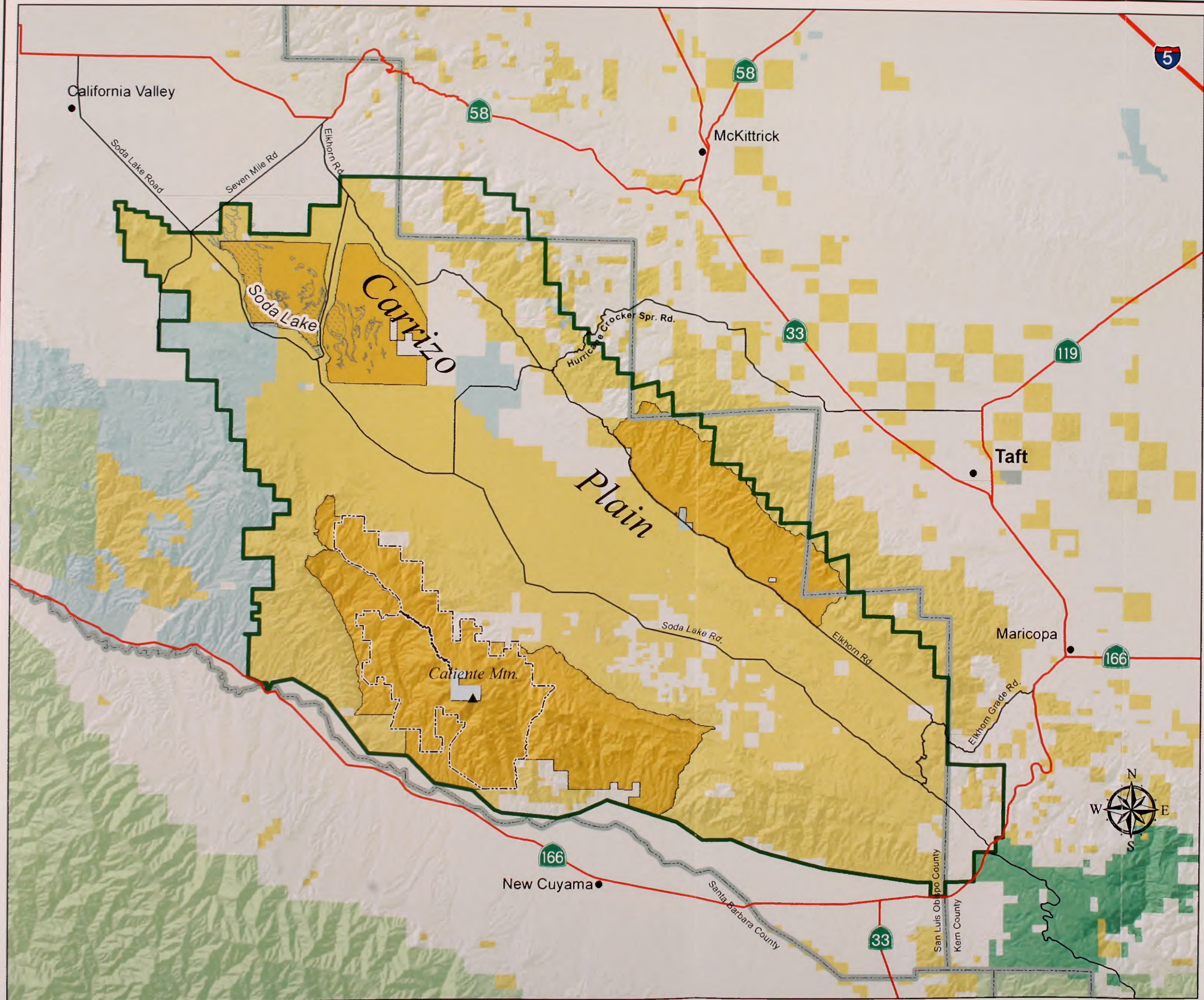
Recreation Management Zones

- Front Country
- Primitive / Lands Managed for
Wilderness Characteristics
- Back Country

Land Ownershp

- Bureau of Land Management
- US Forest Service
- US Fish and Wildlife Service
- State
- County/State/Regional
- Private/Other





Map 2-5
Lands Managed for
Wilderness Characteristics

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

Legend

- Carrizo Plain National Monument
- County Maintained Road

Lands Managed for
Wilderness Characteristics

- Approved Plan

Land Ownership

- Bureau of Land Management
- US Forest Service
- US Fish and Wildlife Service
- State
- County/State/Regional
- Private/Other



0 2.5 5
Miles

Map 2-6

Livestock Grazing Allocations

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

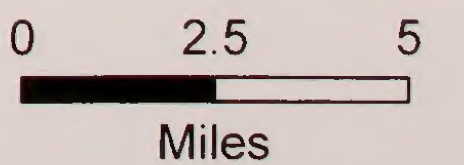
Legend

-  Carrizo Plain National Monument
-  County Maintained Road
-  Grazing Allotments
-  Pastures
-  Unavailable
-  Available, Only Veg. Mgmt.
-  Available

Land Ownership

-  Bureau of Land Management
-  US Forest Service
-  US Fish and Wildlife Service
-  State
-  County/State/Regional
-  Private/Other

Allotment Number	Name
15	North Temblor
18	Washburn Ranch
22	Mc Kittrick Summit
26	Painted Rock
29	KCL
31	Sulphur Canyon
39	Chimineas Ranch South
43	Goodwin Ranch
44	Selby Ranch
46	Saucito Ranch
53	Temblor-Caliente
70	Carrizo Ranch
92	Phelan
96	Maricopa
3655	Wood Canyon
XX	Fault



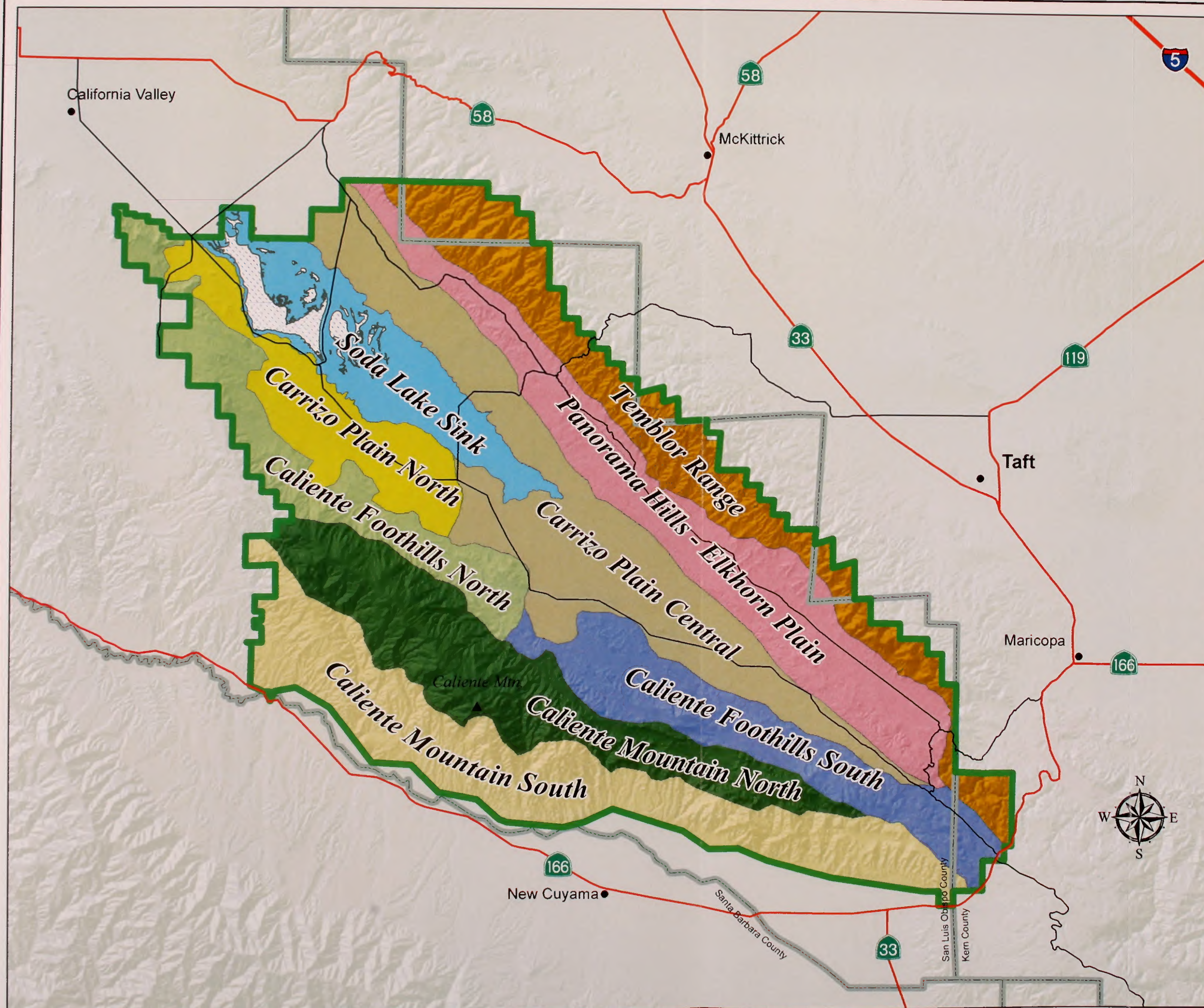
**Map 3-1
Carrizo Plain Subregions**

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

Legend

-  Carrizo Plain National Monument
-  County Maintained Road



0 2.5 5
Miles

Map 3-2 Special Status Animals

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

Legend

-  Carrizo Plain National Monument
-  County Maintained Road

Potential Habitat and Species Locations

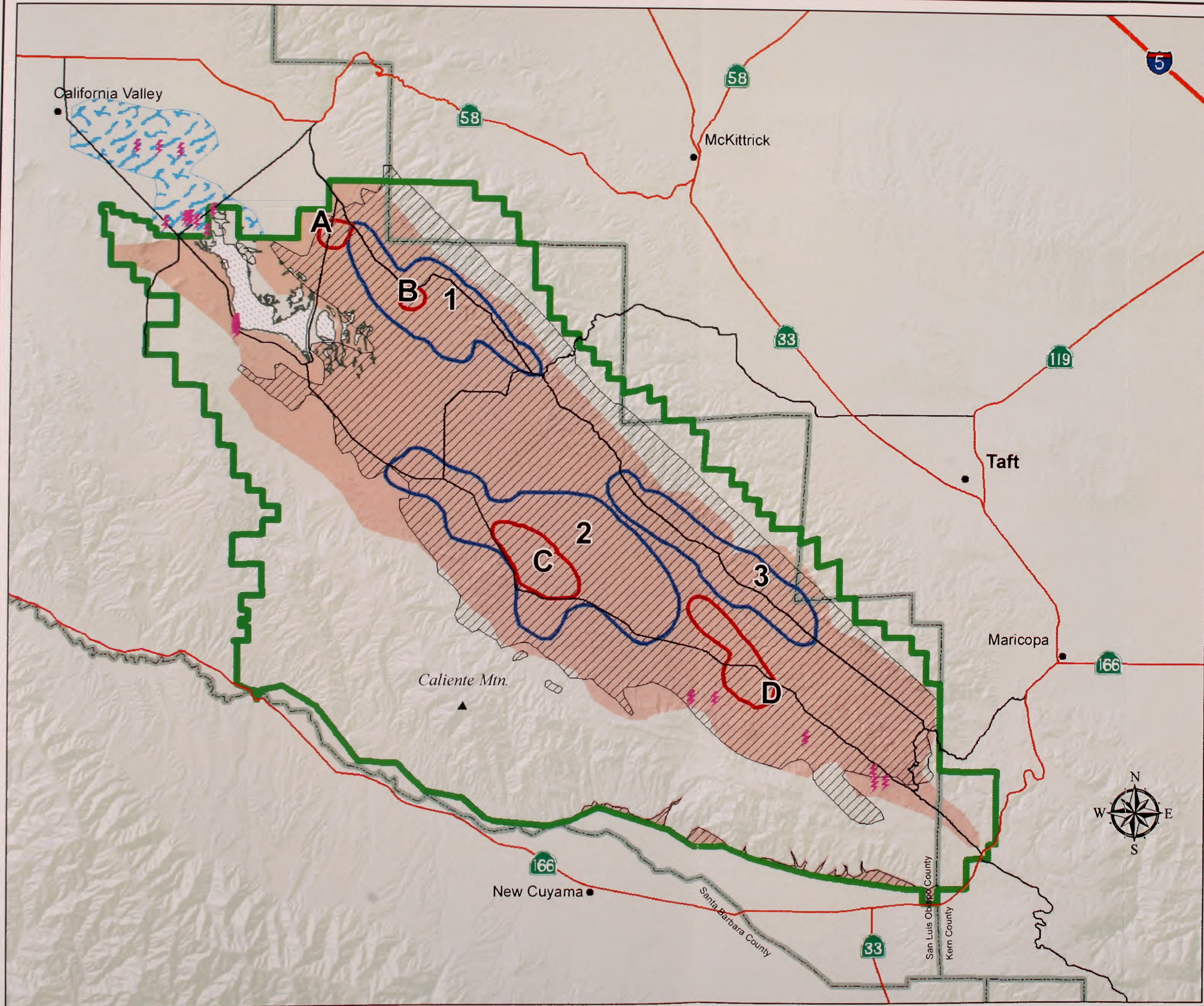
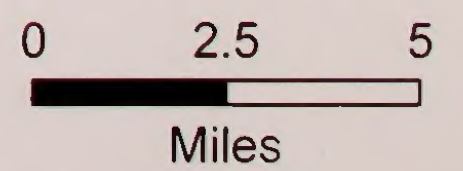
-  Blunt-nosed Leopard Lizard
-  Giant Kangaroo Rat & San Joaquin Antelope Squirrel
-  San Joaquin Kit Fox
-  Designated Critical Habitat for Longhorn and Vernal Pool Fairy Shrimp
-  Longhorn Fairy Shrimp Locations (*Branchinecta longiantenna*)

Core Areas for Species Status Species

-  Core Area Boundary BNLL, GKR, SJKF, SJAS
-  Core Area Boundary MOPL

Key to Species

- BNLL - Blunt-nosed Leopard Lizard
- GKR - Giant Kangaroo Rat
- MOPL - Mountain Plover
- SJAS - San Joaquin Antelope Squirrel
- SJKF - San Joaquin Kit Fox



Map 3-3
Pronghorn and Elk Habitat
 Carrizo Plain National Monument
 ROD/Approved Plan

Bureau of Land Management
 Bakersfield Field Office

Legend

 Carrizo Plain National Monument

 County Maintained Road

 Pronghorn Habitat

 Elk Habitat

Land Ownership

 Bureau of Land Management

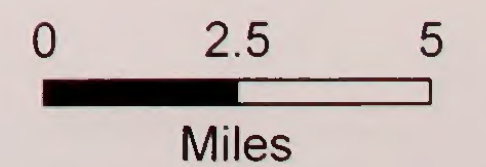
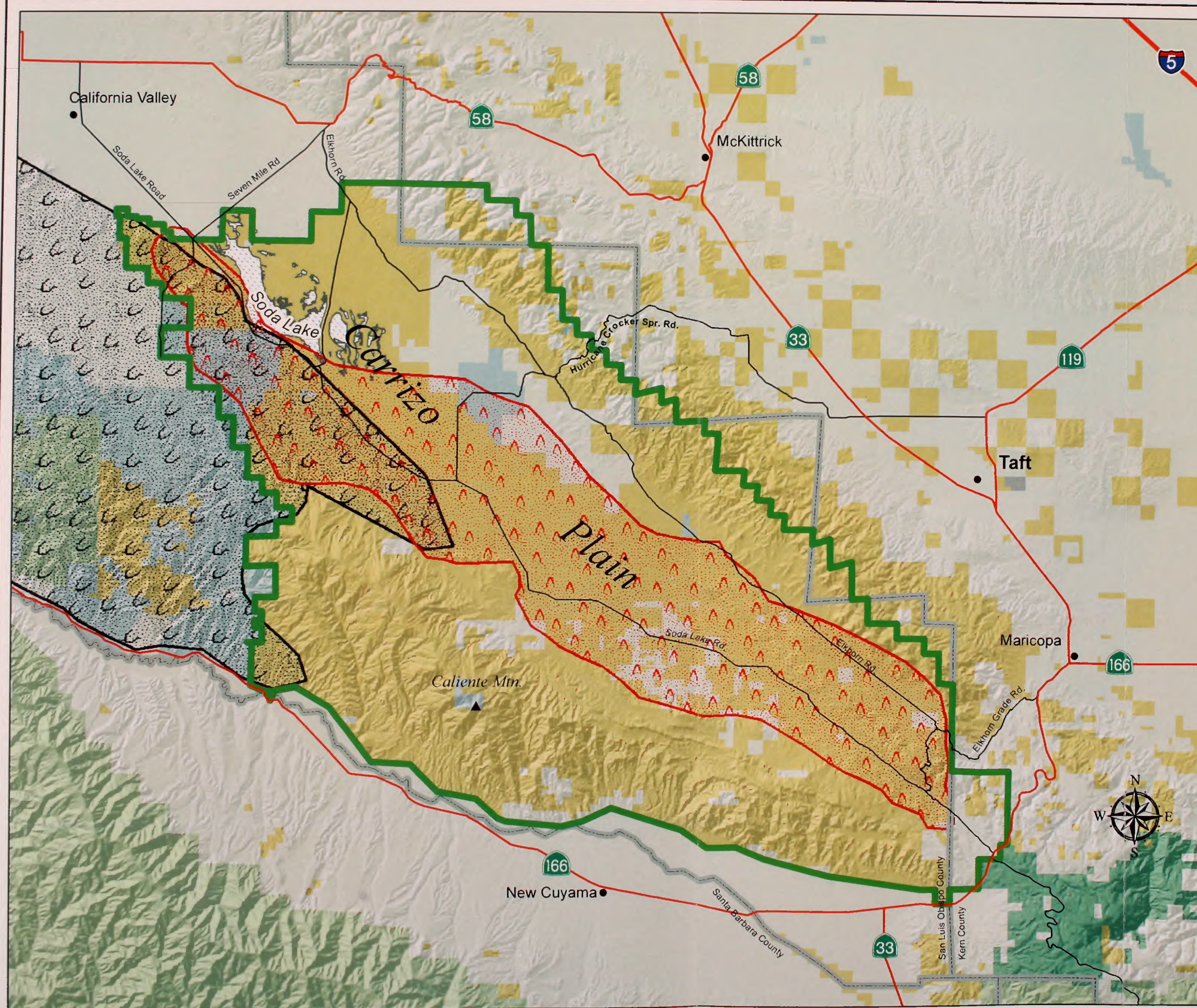
 US Forest Service

 US Fish and Wildlife Service

 State

 County/State/Regional

 Private/Other



Map 3-4 Special Status Plants

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

Legend

-  Carrizo Plain National Monument
-  County Maintained Road

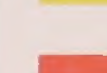
Federally Endangered

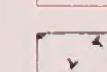
-  *Caulanthus californicus*
-  *Monolopia congdonii*
-  *Eriastrum hooveri*

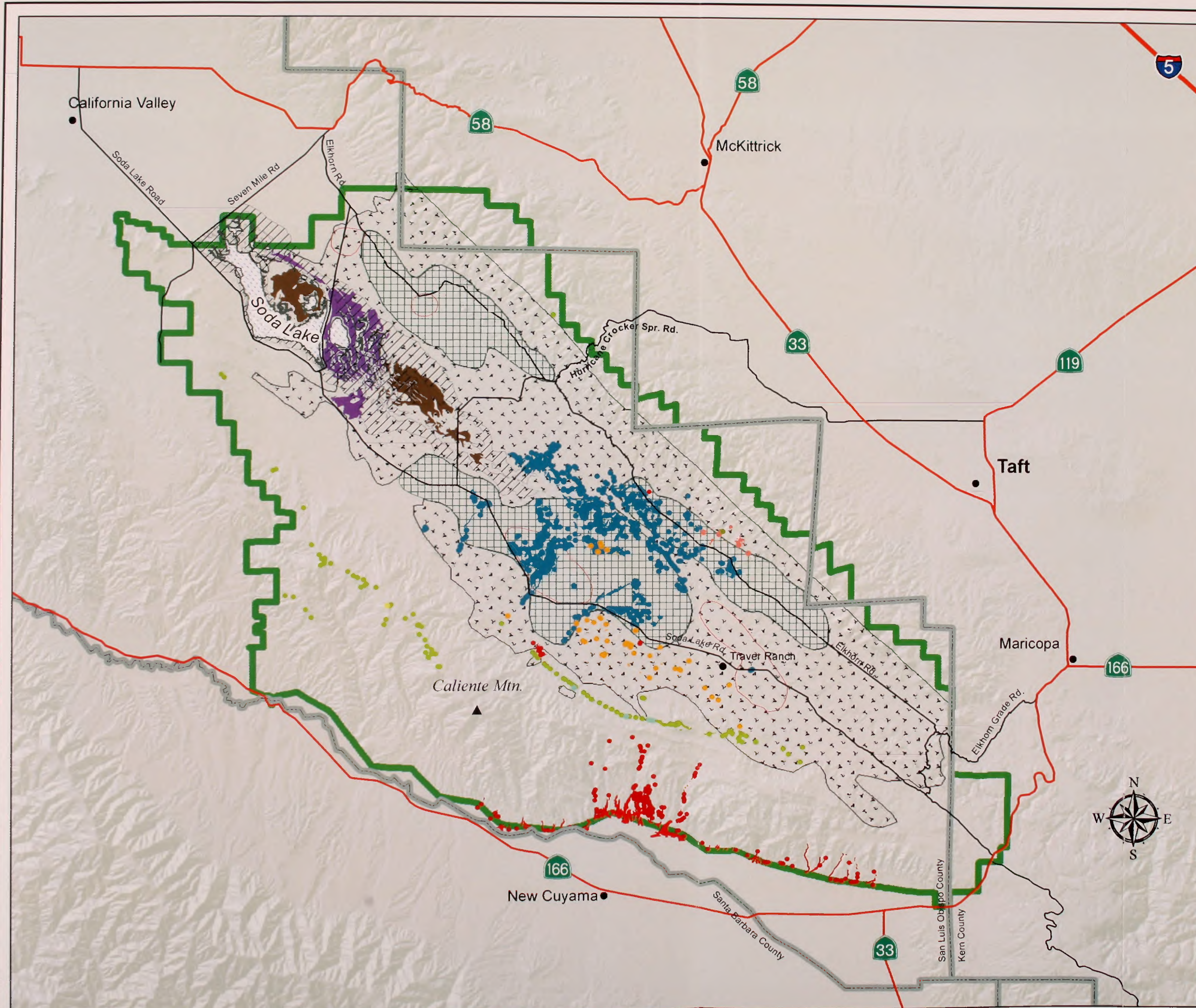
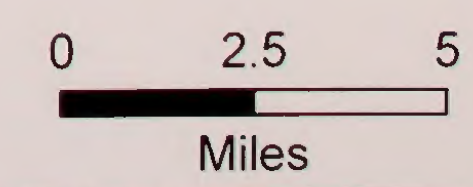
BLM Sensitive Plants

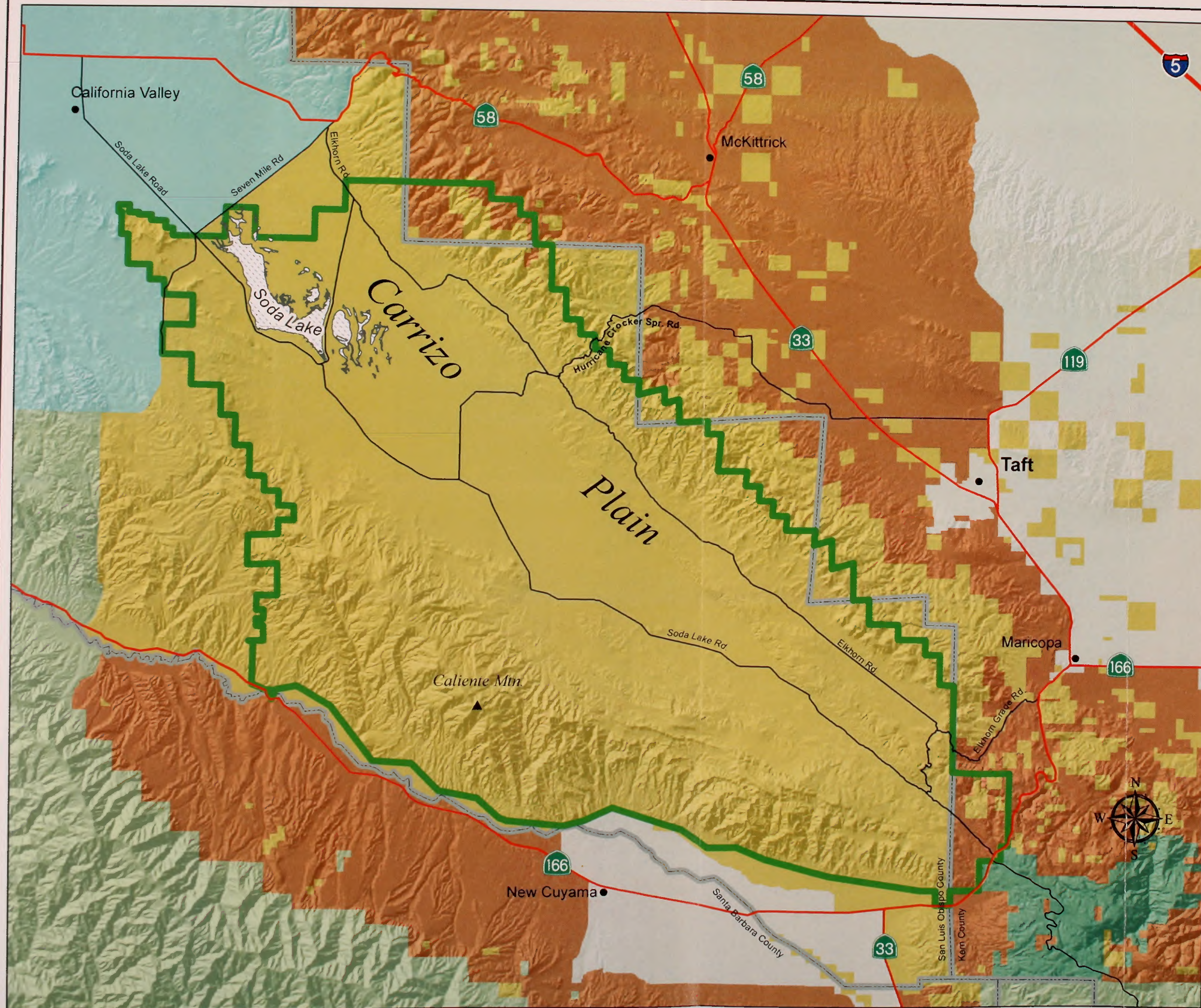
-  *Delphinium recurvatum*
-  *Eriogonum temblorense*
-  *Layia heterotricha*
-  *Layia munzii*
-  *Lepidium jaredii*

Other Sensitive Plants

-  *Acanthomintha obovata*
ssp. *cordata*
-  *Amsinckia vernicosa*
var. *furcata*
-  *Antrrinum ovatum*

-  Mountain Plover core area
-  Suitable T&E Habitat
-  T & E Species Core
Mgmt. Area





Map 3-5
Fire Protection Providers
Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

Legend

- Carrizo Plain National Monument
- County Maintained Road
- Fire Protection Providers**
 - Bureau of Land Management
 - Los Padres National Forest
 - US Fish & Wildlife Service
 - State Responsibility Area, CalFire.
 - State Responsibility Area Covered by Counties under Contract (Santa Barbara Co. and Kern Co.)
 - Local Government (City, County or Rural Fire Dept.)



0 2.5 5
Miles

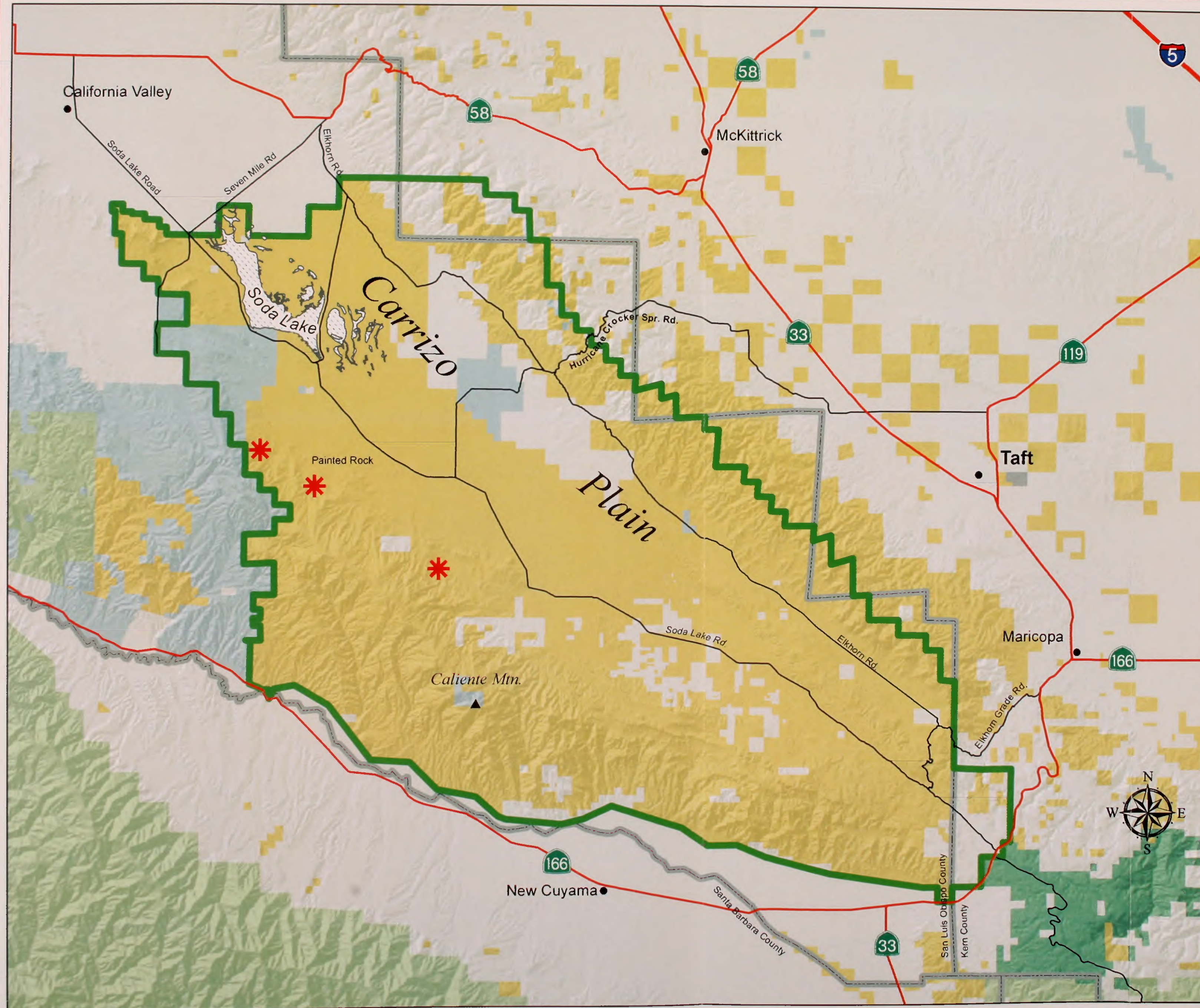
MAP 3-6
National Register of Historic Places
 Carrizo Plain National Monument
 ROD/Approved Plan
 Bureau of Land Management
 Bakersfield Field Office

Legend

-  Carrizo Plain National Monument
-  County Maintained Road
-  National Register Districts

Land Ownership

-  Bureau of Land Management
-  US Forest Service
-  US Fish and Wildlife Service
-  State
-  County/State/Regional
-  Private/Other



0 2.5 5
 Miles

Map 3-7 Grazing Allotments

Carrizo Plain National Monument
ROD/Approved Plan

Bureau of Land Management
Bakersfield Field Office

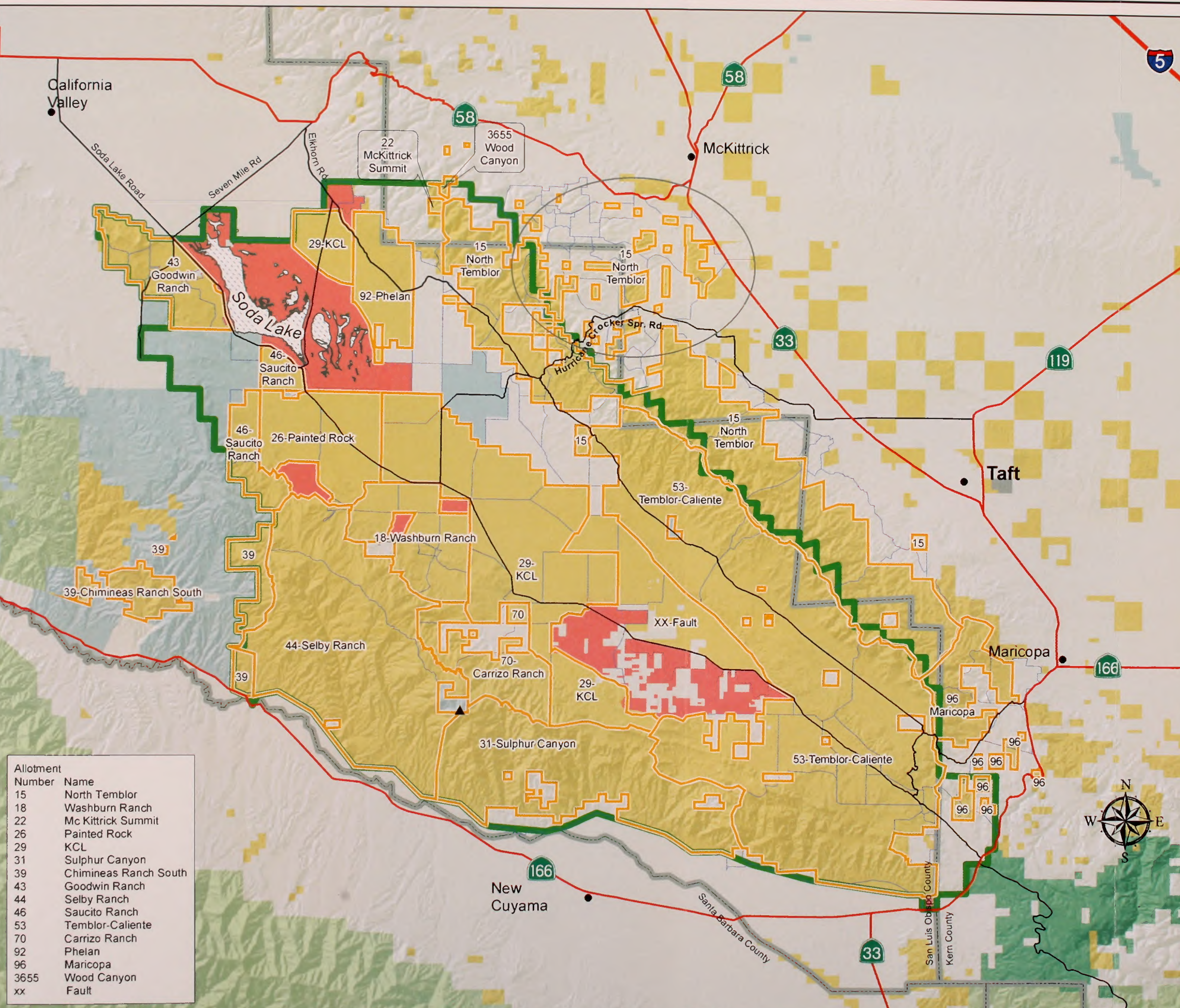
Legend

-  Carrizo Plain National Monument
-  County Maintained Road

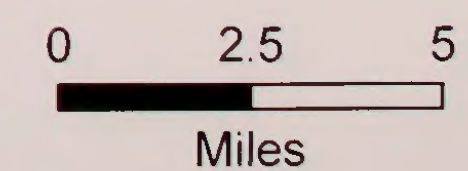
-  Grazing Allotments
-  Pastures
-  Unavailable

Land Ownership

-  Bureau of Land Management
-  US Forest Service
-  US Fish and Wildlife Service
-  State
-  County/State/Regional
-  Private/Other

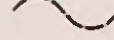


Allotment Number	Name
15	North Temblor
18	Washburn Ranch
22	Mc Kittrick Summit
26	Painted Rock
29	KCL
31	Sulphur Canyon
39	Chimineas Ranch South
43	Goodwin Ranch
44	Selby Ranch
46	Saucito Ranch
53	Temblor-Caliente
70	Carrizo Ranch
92	Phelan
96	Maricopa
3655	Wood Canyon
xx	Fault

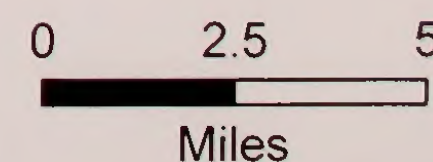
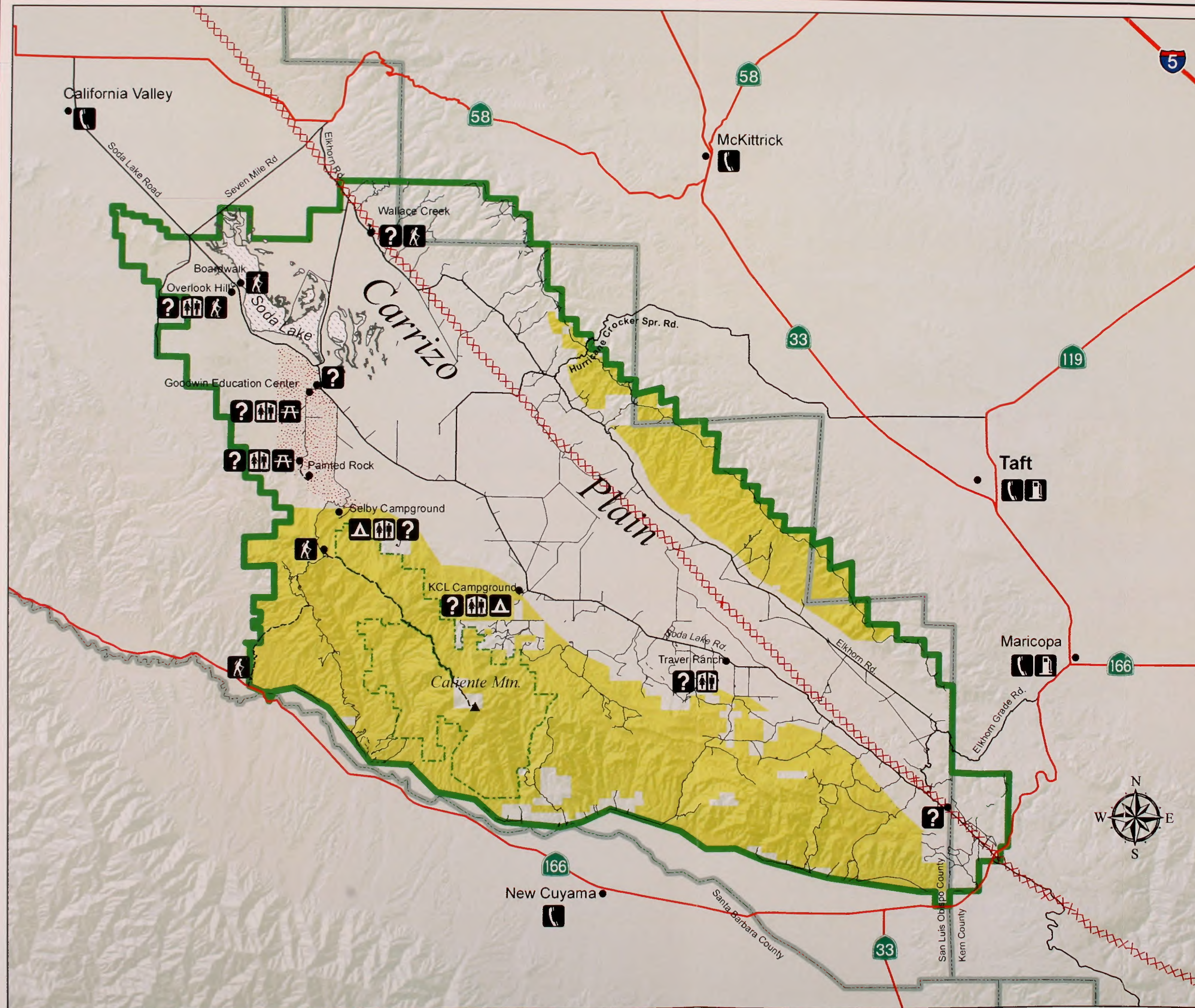


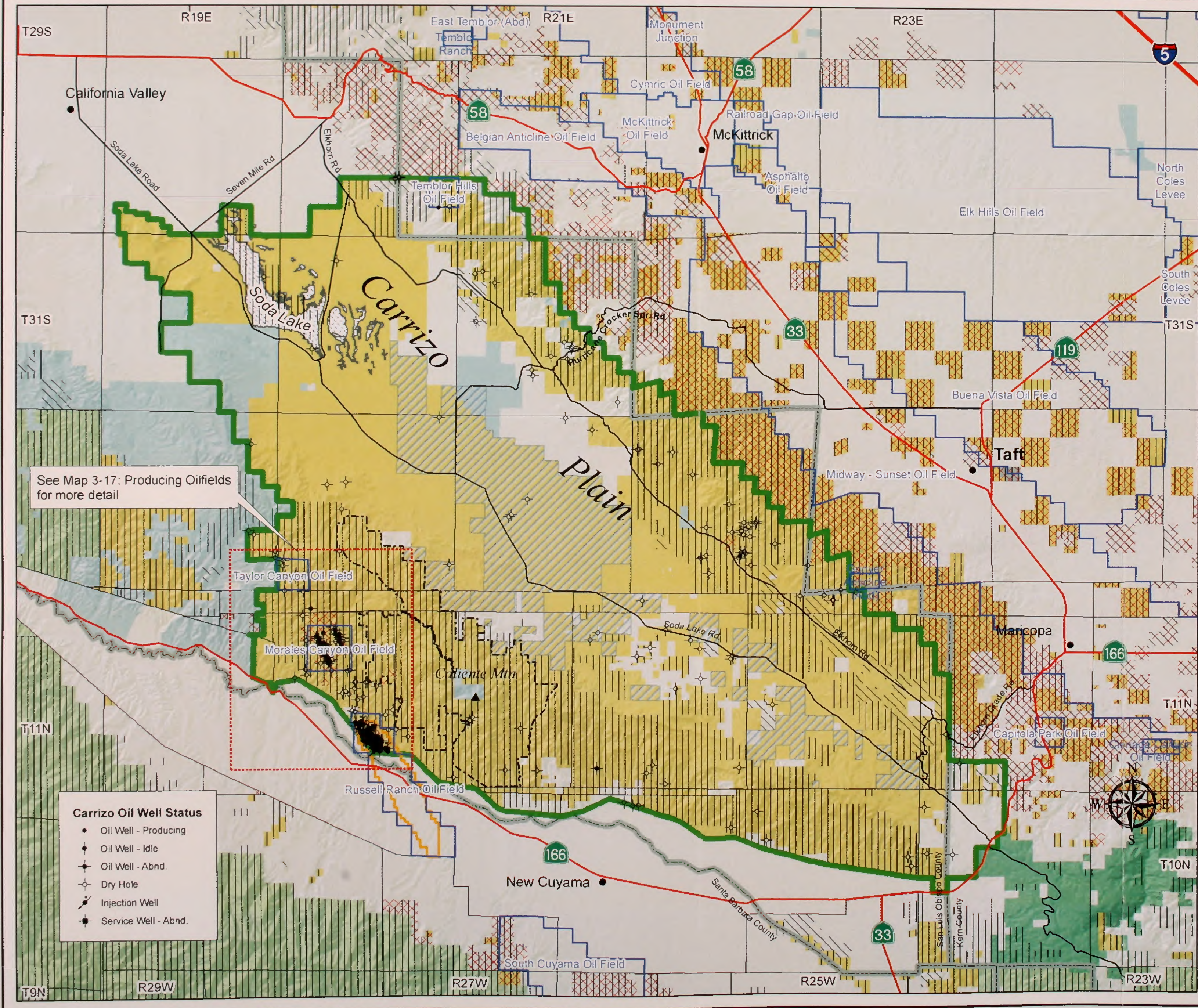
Map 3-8
Visitor Services and Recreation
 Carrizo Plain National Monument
 ROD/Approved Plan
 Bureau of Land Management
 Bakersfield Field Office

Legend

-  Carrizo Plain National Monument
-  County Maintained Road
-  Foot Trails
-  Open Routes
-  San Andreas Fault
-  No Hunting Zone
-  Dispersed Camping Area

NOTE: Some roads shown here as open cross private land and access may be restricted by the property owners.





Map 3-9
Oil and Gas Wells within the
Carrizo Plain National Monument

Carrizo Plain National Monument
 ROD/Approved Plan

Bureau of Land Management
 Bakersfield Field Office

Legend

- Carrizo Plain National Monument
- County Maintained Road
- Occidental Petroleum Minerals
- Russell Ranch Unit
- Administrative Oilfield Boundary
- Federal Oil & Gas Leases

U.S. Mineral Estate

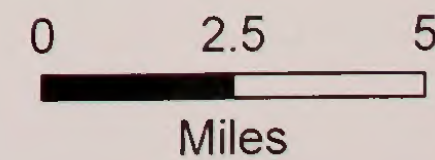
- All minerals Reserved
- Oil and gas Reserved
- Sodium and or Potassium

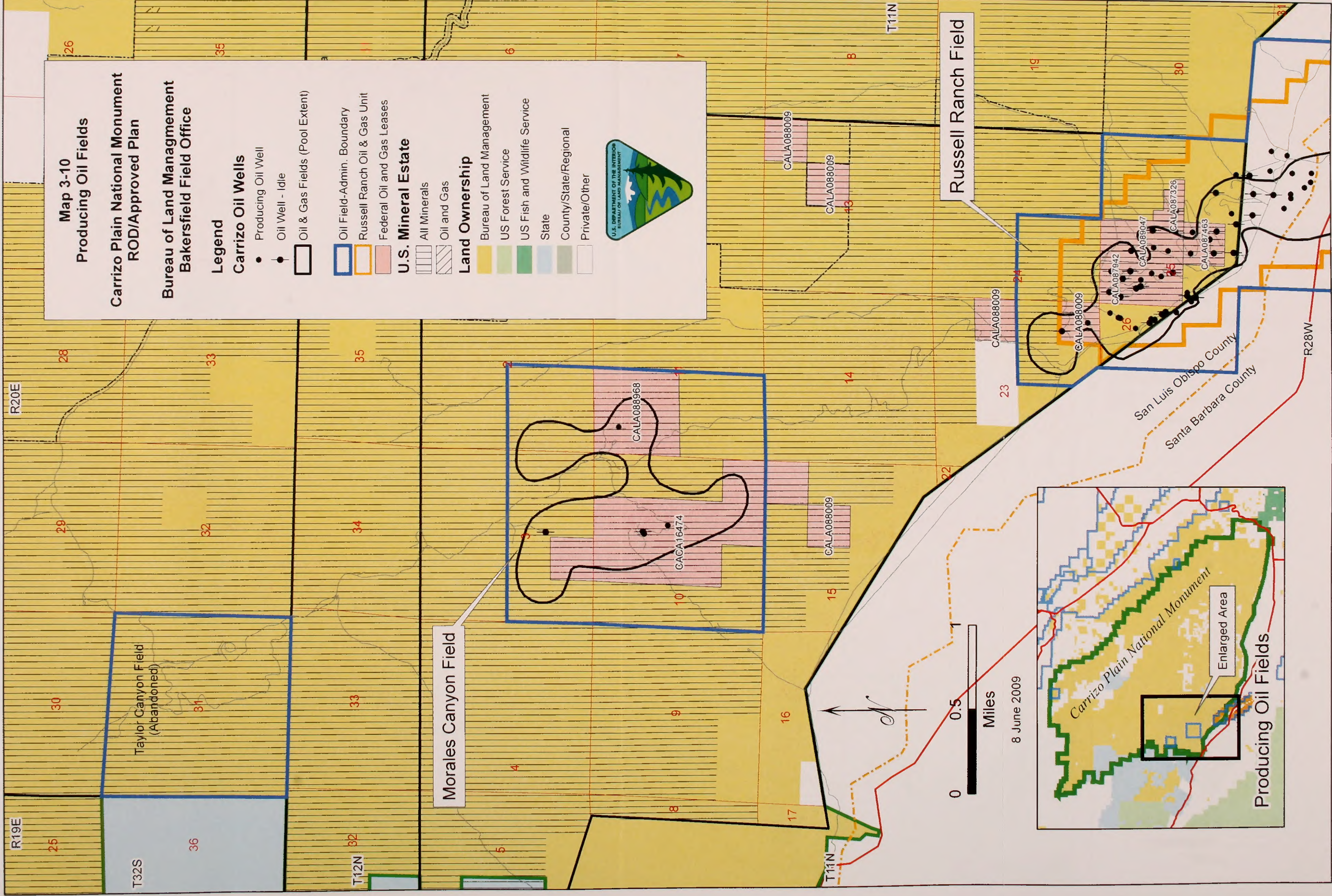
Land Ownership

- Bureau of Land Management
- US Forest Service
- US Fish and Wildlife Service
- State
- County/State/Regional
- Private/Other

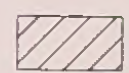
Carrizo Oil Well Status

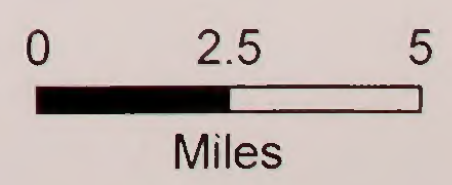
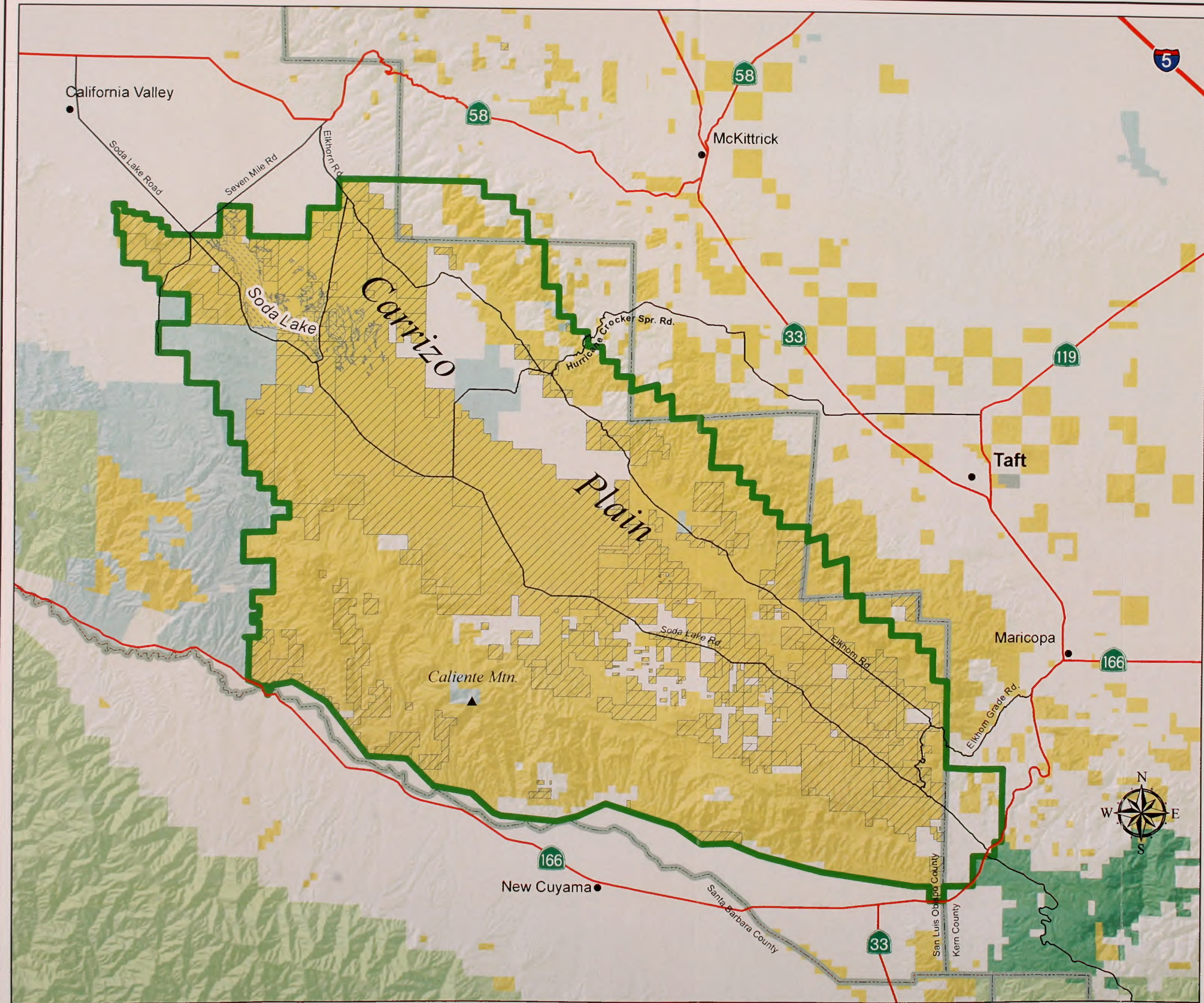
- Oil Well - Producing
- Oil Well - Idle
- Oil Well - Abnd.
- Dry Hole
- Injection Well
- Service Well - Abnd.





Map 3-11
Land Ownership Status
 Carrizo Plain National Monument
 ROD/Approved Plan
 Bureau of Land Management
 Bakersfield Field Office

- Legend**
-  Carrizo Plain National Monument
 -  County Maintained Road
 -  BLM Land Acquisitions
- Land Ownership**
-  Bureau of Land Management
 -  US Forest Service
 -  US Fish and Wildlife Service
 -  State
 -  County/State/Regional
 -  Private/Other



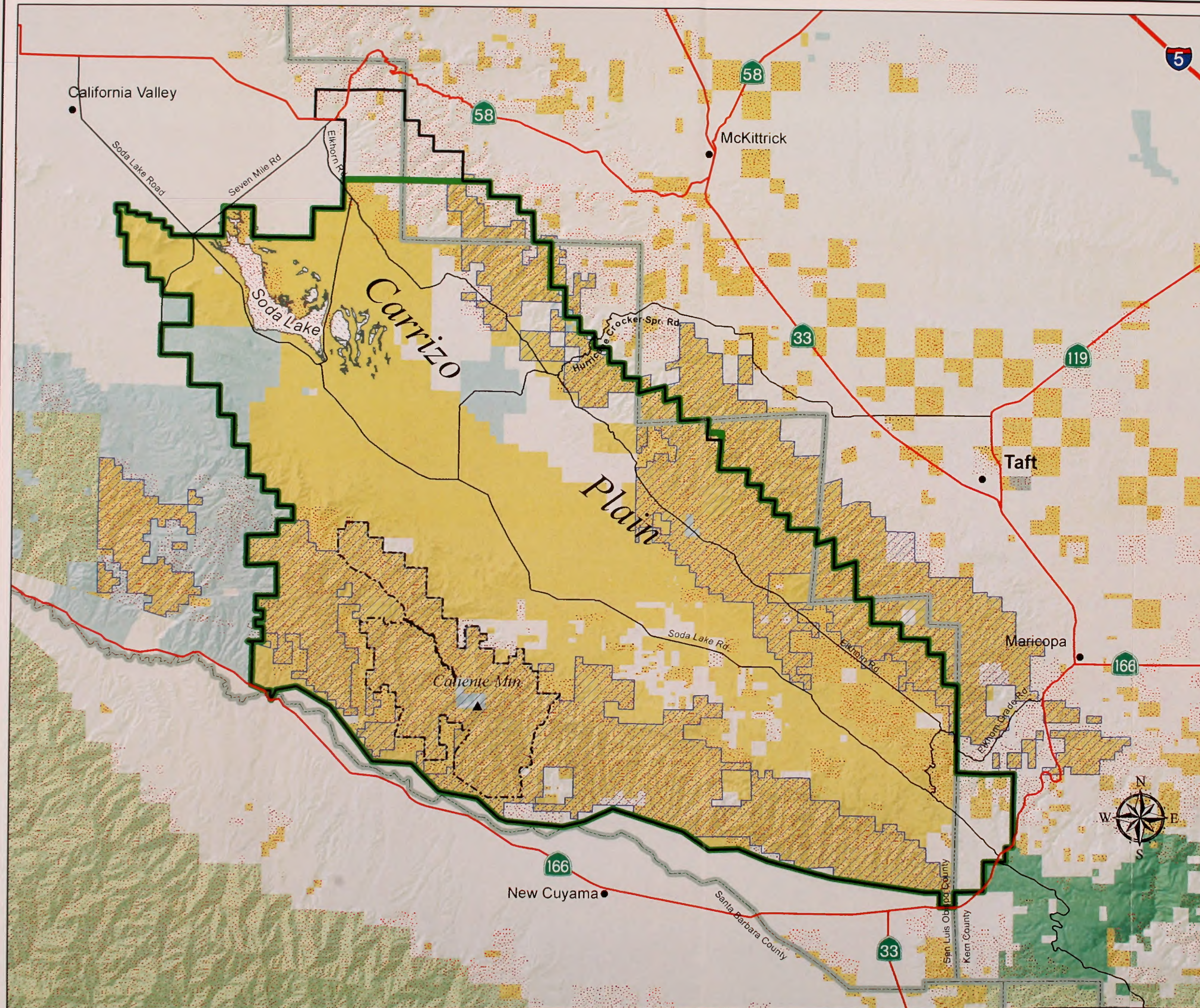
Map 3-12
Land Status and Withdrawals
 Carrizo Plain National Monument
 ROD/Approved Plan
 Bureau of Land Management
 Bakersfield Field Office

Legend

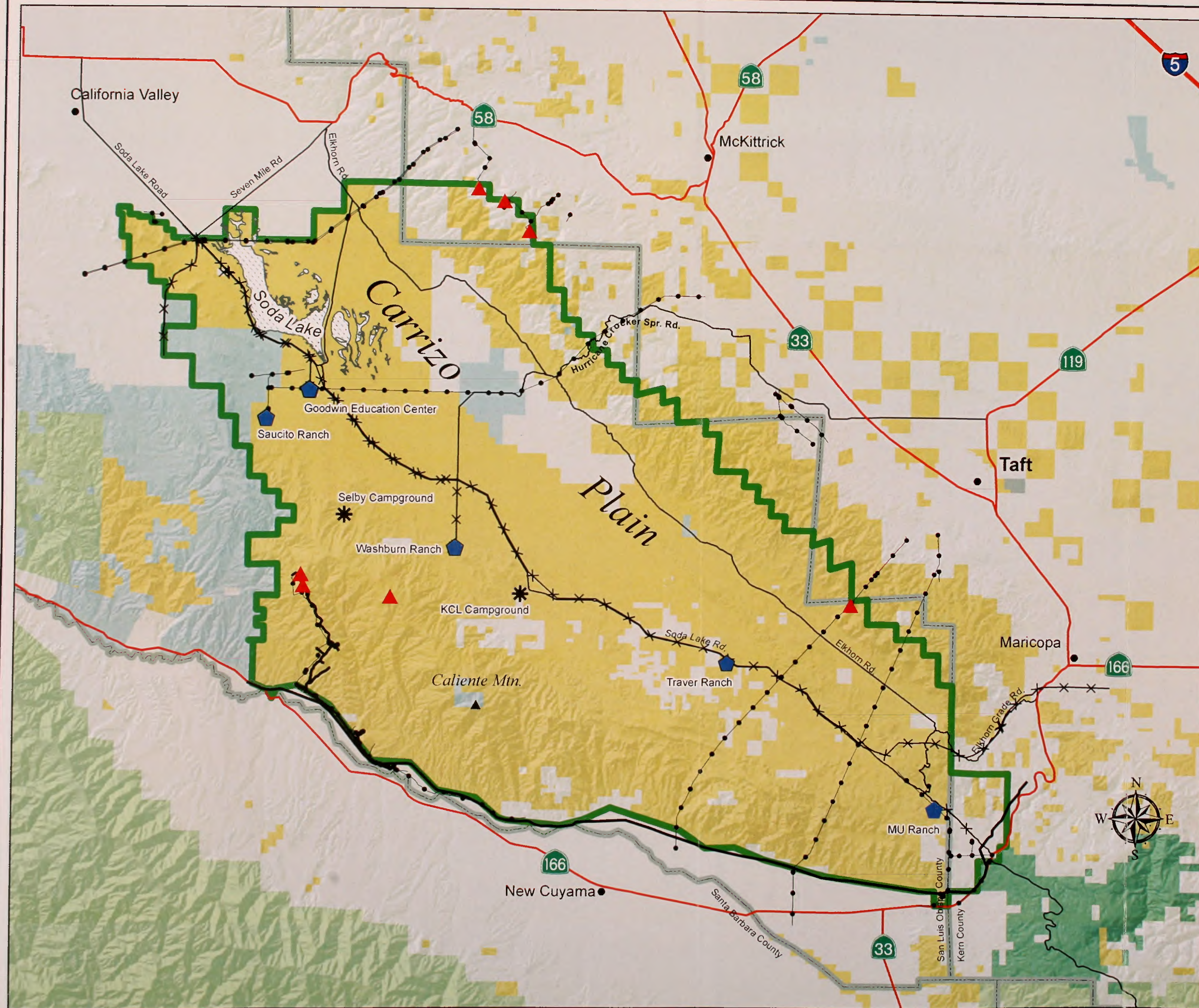
-  Carrizo Plain National Monument
-  County Maintained Road
-  Carrizo Plain Natural Area ACEC
-  Federal Minerals
-  Nat'l Cooperative Land & Wildlife Mgmt Area

Land Ownership

-  Bureau of Land Management
-  US Forest Service
-  US Fish and Wildlife Service
-  State
-  County/State/Regional
-  Private/Other

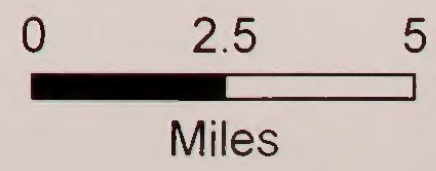


0 2.5 5
 Miles



**Map 3-13
Infrastructure**
Carrizo Plain National Monument
ROD/Approved Plan
Bureau of Land Management
Bakersfield Field Office

- Legend**
- Carrizo Plain National Monument
 - County Maintained Road
 - BLM Facility
 - campground
 - Communication site
- Service Lines**
- Oil pipeline
 - Power line
 - Telephone
- Land Ownership**
- Bureau of Land Management
 - US Forest Service
 - US Fish and Wildlife Service
 - State
 - County/State/Regional
 - Private/Other



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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Bakersfield Field Office
3801 Pegasus Drive
Bakersfield, CA 93308

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